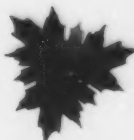




"Unimpaired for Future Generations"?

Volume I:
A Call to Action

Panel on
the Ecological
Integrity of Canada's
National Parks



Commission sur
l'intégrité écologique
des parcs nationaux
du Canada

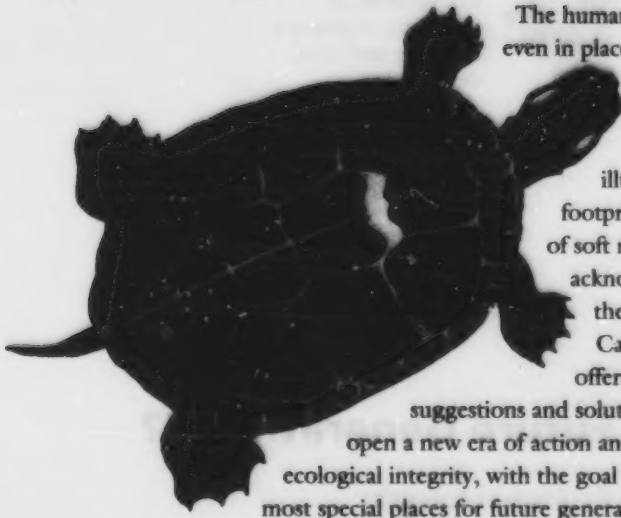
"Unimpaired for Future Generations"?

Conserving Ecological Integrity
with Canada's National Parks

Volume I: A Call to Action

Canada

On the cover:



The human footprint is inescapable, even in places Canadians call "wilderness." This photo by Panel Vice-Chair Pamela Wright graphically illustrates that point — a footprint deeply sunk into a bed of soft moss. The Panel's report acknowledges the significance of the ecological footprint in Canada's national parks, but offers many recommendations, suggestions and solutions to help Parks Canada open a new era of action and responsibility for ecological integrity, with the goal of preserving Canada's most special places for future generations.

The Turtle Image: Many Aboriginal peoples believe that long life endows the turtle with great knowledge and wisdom. According to Haudenosaunee culture, the Sky Woman created the world on the back of a turtle. North America is known as Great Turtle Island to many Aboriginal peoples. The Turtle image appears throughout this report as a symbol of wisdom, respect, and traditional connections to the land.

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TABLE of CONTENTS

Letter to the Minister	v
Acknowledgements	vi
Volume I: A Call to Action — Dedication: The Visionaries	1
About This Report	2
Canada's National Parks	3
Crisis? What Crisis?	5
National Parks at the Crossroad	8
Why Do We Need National Parks?	9
A Call to Action: Parks Canada	13
A Call to Action: All Canadians	18
The Path Before Us	19
Challenges and Highlights	20
Signatures	22

8



15 February, 2000

Hon. Sheila Copps, P.C., M.P.
Minister, Canadian Heritage
Ottawa

Dear Minister:

Where most people view Canada's national parks as sanctuaries, preserved from disturbance by their very designation as parks, you sensed that national parks may not be as safe as Canadians believe, and thus the need for an examination of the entire national parks system.

Building on the work of the Banff-Bow Valley Task Force, which reported to you in 1996, in November 1998 you charged the Panel on the Ecological Integrity of Canada's National Parks with a mandate to examine the issues related to ecological integrity in national parks and to advise you on the actions required.

Our findings confirm your intuition: our national parks are under threat, from stresses originating both inside and outside the parks. Unless action is taken now, deterioration across the whole system will continue.

We have come to this conclusion through learning from the people of Parks Canada, from their partners, and from community representatives whom we met in workshops held in nine national parks and eight cities from coast to coast. We learned also from people who work in parks, who visit parks, who live near parks, who live in cities. We learned from Aboriginal peoples, non-governmental organizations, from farmers and ranchers, from representatives of mining, forestry, tourism and other industries.

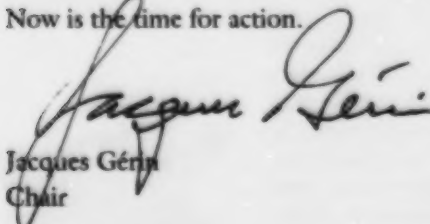
All are unanimous in asserting that the first priority of Parks Canada is to protect the ecological integrity of Canada's national parks, so as to leave the parks **unimpaired for future generations**.

In our report we outline many of the problems and challenges facing the people of Parks Canada in their pursuit of that mandate, and we celebrate their successes.

First and foremost, our report is a call to action, a challenge to you and to your colleagues, to the Parks Canada Agency, and to all Canadians, to make this priority a reality and to live up to our collective responsibility for national parks — and to future generations.

Our journey has been one of great learning. We thank you for the privilege.

Now is the time for action.



Jacques Gelin
Chair

Acknowledgements

The Panel on the Ecological Integrity of Canada's National Parks gratefully acknowledges the contributions of the many people who gave their time and energy to make verbal or written submissions to the Panel, and those who provided information on request or through contractual arrangements. We had the privilege of travelling across Canada, hearing from literally hundreds of people, including governments, non-government agencies, Aboriginal peoples, industry, farmers, foresters, academics and park staff on the future of Canada's national parks. We always received thoughtful comments. The insight and suggestions we received exceeded our expectations and are reflected in our report. In particular the Panel wishes to thank staff of the Parks Canada Agency across Canada for their forthright comments. Without such honesty and dedication, the Panel could not have accomplished its work.

The Panel also extends sincere thanks to our Secretariat, who tirelessly sought information, made meeting, workshop and travel arrangements, and provided valuable input in a myriad of ways.

Editor's Notes

Each of the Panel members, the Panel's international advisors, and the Panel Secretariat contributed their words, ideas and energy to this work. There is no single author although certain members took the lead in preparing the report's individual chapters. In editing the report it's been my intention not to homogenize the text but to allow the voices and passions of Panel members to speak directly to the reader.

Throughout this report, Panel members quote extensively from published materials, as well as from verbal and written submissions made during the Panel's many sessions in national parks and other locations across Canada. Many of these submissions were made in confidence, enabling those making submissions to treat sensitive topics openly and honestly. For that reason, the Panel has chosen not to identify the source of submissions quoted throughout this report, but to identify some sources only as a "submission to the Panel."

Throughout both volumes of the report, I have used several conventions, as follows:

- italics indicate a direct quote;
- sidebars — short pieces of text set off from the main text of the report by horizontal lines above and below — provide additional information or details to supplement the main text;
- the Panel's recommendations are clearly set apart from the main text by a black title box.

Photo Credits

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**"Unimpaired for Future Generations"?
Conserving Ecological Integrity with Canada's National Parks
Volume 1: A Call to Action**

*But it's hard to draw
the boundary
imaginary line
that cuts the watersheds
You got to know the ground
climb the crumbling mountain walls
to know which way the rivers run
headwaters, where the world begins*

Sid Marty, "Pushing the Boundary" *Headwaters*, 1973

Dedication: The Visionaries

Canada's national parks protect, for all time, places that help Canadians know who we are.

National parks inspire our hope for the future, our understanding of the past, and a sense that Canadians are a people defined by the land and its condition. Parks are places where we protect that part of the Canadian mind that resonates with wilderness, space and beauty.

Canada has benefited from the vision and commitment of many Canadians, past and present, and their involvement with our national parks. That we have a national park system the envy of the world, where Canadians and our guests are able to celebrate, experience and learn about nature, is an enduring legacy made possible by these visionaries.

The visionaries include those who first appreciated the stunning beauty of Canada's remarkable landscapes and chose to create our early national parks. People in governments at all levels, who have often taken bold steps in establishing and protecting national parks, can be counted among the visionaries. Also among the visionaries are Aboriginal peoples and First Nations governments, who value wild places and who have much to teach in the realm of respect and responsibility. Still

other visionaries are people who love wild places and who devote time and energy to non-governmental organizations, community groups, and other means to advocate for national parks. Leaders of these groups, working with leaders in forestry, agriculture and other sectors, have had the foresight and generosity to help protect our national parks through their influence and decisions.

Especially deserving of recognition are national parks staff. Our national parks system began in 1885 and has expanded to represent many of Canada's unique landscapes; throughout this history, national parks staff have been dedicated to protecting our parks. Parks Canada staff are often under pressure from many sides to resolve issues concerning development and conservation, yet staff continue to seek ways to improve their stewardship of national parks. Many have achieved great success by virtue of their determination, innovation, vision and passion for Canada's special places.

Canadians prize wild nature and hold our parks among our most significant icons of national identity. Every Canadian has a role in the national parks story. In the near future — over the next generation — our actions and decisions will determine whether or not we, too, are visionaries.



Children studying
aquatic insects.



About This Report

The Panel on Ecological Integrity was struck in November 1998 by the Minister of Canadian Heritage, the

Hon. Sheila Copps, to identify issues, examine Parks Canada's approach for maintaining ecological integrity and provide recommendations for improvement. The Panel members travelled to a series of representative national parks to speak with park staff and other interested Canadians, to see first-hand the problems and stresses that threaten our national

parks, and to develop a sense of how to address these problems.

The result of that journey is a detailed report with specific recommendations addressed to the Minister and to the Parks Canada Agency. The Panel also wanted to share with a broader audience the fundamental substance of

their findings and the thrust of their recommendations. Thus, the Panel's report has two volumes:

- "Volume I: A Call to Action" is an umbrella document that describes the serious threats that beset our national parks, presents an overview of values that may be lost if the threats are not resolved and identifies roles and key actions for all Canadians, and particularly for Parks Canada, to help resolve these threats.

- "Volume II: Setting a New Direction for Canada's National Parks" identifies specific issues and problems and makes equally specific recommendations to the Minister and to Parks Canada on how these issues could be addressed.

While there are branches of the Parks Canada Agency concerned with national historic canals, national historic sites, and other locations or structures, in this report the term "Parks Canada" is used specifically with reference to those branches of the Parks Canada Agency with jurisdiction over national parks.

A Definition of Ecological Integrity

The Panel proposes the following definition of ecological integrity:

"An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes."

In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.



Pacific Rim National Park Reserve appears wild and pristine but is ecologically stressed.



Canada's National Parks

Canada currently has an extensive system of national parks, 39 at the time of writing this report, representing 25 of the country's 39 terrestrial natural regions. From Terra Nova in the east to Gwaii Haanas in the west, from Quttinirpaaq near the northern reaches of Ellesmere Island to Point Pelee in the south, Canadians have a national parks system second to none. Among our

national parks are areas recognized as World Heritage Sites (such as Gros Morne, Wood Buffalo and the four Rocky Mountain national parks). Wetlands protected by some of our parks are recognized as having international importance and high biological productivity (such as the Old

Banff, established as Rocky Mountain National Park in 1885, was Canada's first national park — and among the first in the world. The Dominion Parks Branch (now known as the Parks Canada Agency) was established in 1911, the world's first organization charged with the management of national parks. Over the years, Parliament continued to add parks to the system. More than 20 national parks have been created since 1970, representing over half of the total number of parks in the system.

Contained in Canada's first National Parks Act, passed in 1930, were the words, "Parks are hereby dedicated to the people of Canada for their benefit, education, and enjoyment... Such Parks shall be maintained and made use of so as to leave them unimpaired for the enjoyment of future generations." Thus was a legacy for protection born.

Canada's national park system is a mirror of the approach to nature protection in North America which evolved over the past 125 years. In the late 1800s, in the midst of the Industrial

We believe that we need an ecological template for all of Canada's national parks. The Banff-Bow Valley study was a wake-up call, a wake-up call that we intend to apply by ensuring that ecological integrity is the number one clarion call for every park in Canada.

Hon. Sheila Copps,
Minister of Canadian Heritage,
October 1999

Crow Flats area of Vuntut National Park). Still other parks are part of an international network of biosphere reserves (Waterton-Glacier International Biosphere Reserve and Riding Mountain Biosphere Reserve).

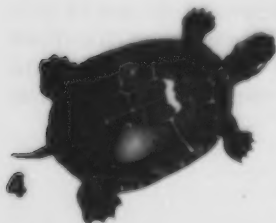


Kejimikujik National Park Wins Ecological Award

In November 1999, Kejimikujik National Park and the park's ecosystem science manager received a prestigious Gold Leaf Award from the Canadian Council on Ecological Areas. These awards are bestowed to recognize "truly outstanding efforts and achievements that have made a significant contribution to the conservation and understanding of Canada's ecological diversity." In part, the award was given to Kejimikujik to recognize the park's improved scientific approach to ecosystem conservation.

"The impact and implications of the scientific activities conducted in the park go well beyond the formal boundaries of the protected area," said the chairman of the Canadian Council on Ecological Areas. "Kejimikujik represents more than the national park. It has been the catalyst that has allowed many agencies and professionals to combine their talents and expertise to address difficult issues like acid rain and biodiversity."

from the Yarmouth
Vanguard,
November 16, 1999



Revolution, the national park idea was born as an antidote to unbridled industrial development. In Canada, Rocky Mountain National Park, like Yellowstone in the United States, was created to preserve some of nature's beauty for people to enjoy.

National parks quickly became seen as places to conserve wildlife as well as landscapes. The first wildlife study was done in Banff the year after the park was created. Other parks were established explicitly to protect wildlife (Wood Buffalo National Park, for example). Natural processes such as fire were thought to be ugly and destructive, and were suppressed. Predators were thought to be "bad" wildlife and exterminated. Exotic fish were introduced for recreational fishing. Large-scale visitor facilities were not understood to conflict with wildlife and were built in some parks.

In the 1960s, as our understanding of ecology grew, the first national parks policy was created to provide more guidance on protection and human use. Over time, predators were seen as important parts of an ecosystem and fires were understood to be natural

processes in forest renewal.

Meanwhile, landscapes outside of parks were subject to development of many kinds and have been radically changed through urban, agricultural and industrial growth. The science of conservation has also evolved. A better understanding of ecosystem functions and conservation strategies increasingly informs our attitudes about national parks and preservation as well as use of resources outside of protected areas. We have come to recognize that Canada's wild places are not endless and that even our protected places are not safe from undesirable change.



Western Brook Pond in Gros Morne National Park

Golfing in Waterton Lakes
National Park



Crisis? What Crisis?

Without more intense effort by Parks Canada and the provinces, our mountain parks will be like the Alps — beautiful to look at but lacking any ecological integrity.

research scientist, submission to the Panel

The Earth is rapidly changing. While the Panel worked on this report, the planet's human population surpassed six billion and is projected to reach nine billion in only 50 years. Humans are now such a dominant force that most world ecosystems are greatly stressed by human activities. From effects on local soils, watersheds and aquifers to broad-scale impacts on oceans and climate, the human footprint is everywhere.

The plants and animals that share the planet with us are being dramatically affected. For example, the World Conservation Union (IUCN) estimates that one of every eight plant species in the world is threatened with extinction.

To many Canadians, national parks contain seemingly endless forests, expanses of tundra, great rivers and lakes, and protected lands that reach beyond the horizon. This bountiful majesty is often misleading, disguising

serious problems beneath a beautiful façade of soaring mountains, shimmering lakes, sparkling glaciers, and roaring surf.

It is a common fallacy among Canadians that wilderness is endless and that "wilderness" is synonymous with "pristine." In truth, national parks are threatened by numerous stresses, many of which originate beyond the boundaries of our parks — some beyond the boundaries of our country. Parks Canada's own State of the Parks 1997 Report identified significant threats to virtually all of Canada's national parks; of the 38 parks in existence at that time, all but one reported stresses and loss of ecological integrity.

Canada, and our national parks, exist amid this world full of environmental changes and stresses. Because wildlife and natural processes know no boundaries, stresses that originate outside of national parks affect ecosystems





A black bear killed on a road in Riding Mountain National Park

within the parks. Our national parks are our icons — they are also our bellwethers. Detecting ecological stresses inside national parks is a warning of larger and more serious stresses that already affect much of Canada.

A sample of the broad internal and external issues facing Canada's parks includes:

- **habitat loss** - in Canada, over 90 per cent of Carolinian forests have been converted to farmland or towns. On the prairies, 99 per cent of the native tall-grass communities and 75 per cent of mixed grass communities have disappeared. In Atlantic Canada, 65 per cent of the coastal marshes have been drained or filled. Across northern Canada, only 35 per cent of the boreal forest remains undisturbed. Largely as a result of this habitat loss, many Canadian species are currently threatened.



Roads fragment the landscape near Georgian Bay Islands National Park

- **habitat fragmentation** - fragmentation of remaining habitat is as serious a problem as habitat loss. Many species, from grizzly bears to flying squirrels and salamanders have difficulty surviving in habitats that are broken into isolated fragments.

Even within parks, fragmentation occurs as a result of developments such as communities, facilities, trails, roads and railways. Roads and railways also cause direct wildlife mortality. Hundreds of large mammals and thousands of birds, amphibians and other creatures are killed on park roads each year.

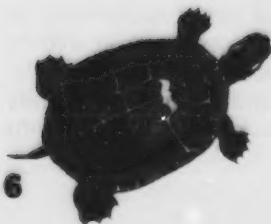
- **losses of large carnivores** - across Canada and especially in the south, large carnivores are disappearing

or are absent, spinning natural predator-prey relationships and cycles out of control. Even though large carnivores are protected within national parks, these predators are threatened by stresses such as human use and development inside parks, as well as hunting, land development, and other pressures that occur outside park boundaries.

From Ontario eastward, wolves are gone from all national parks except Pukaskwa and La Mauricie. In the west, wolves have been extirpated from Elk Island and Grasslands national parks. In several national parks — including Riding Mountain, La Mauricie, Banff and Waterton — wolf populations are low and struggling.

- **air pollution** - airborne pollutants, such as those which cause acid rain, continue to harm many parks. Atlantic Canada and southern Québec have been called the "tailpipe of North America" because this area lies downwind from the major urban and industrial regions of the continent. More than two decades of research at Kejimikujik National Park show that low pH levels in the park's waters are associated with decreased reproductive success of brook trout. Georgian Bay Islands and La Mauricie national parks continue to face the risk of acid deposition in excess of the ability of landscapes within these parks to buffer sulphate and other acidic compounds.

- **pesticides** - pesticides used outside of parks are being detected within parks. For example, the pesticide toxaphene was widely used (outside of national parks) until two decades ago. It can disrupt endocrine systems, damage lungs, livers and kidneys, and cause problems with reproductive and immune systems, developmental disorders and cancer. Research at Bow Lake in Banff National Park has found toxaphene in some zooplank-



ton, while trout in Bow Lake have toxaphene concentrations up to 20 times greater than other fish in the lake and up to 1000 times greater than fish from other lakes in the park.

A study in La Mauricie National Park showed high mercury levels in the blood and feathers of the park's loons; mercury in their feathers is

higher than any other studied site in North America. Mercury levels in loons from Kejimikujik National Park are also high, leading to reduced nesting and hatching success. The pesticide DDT has been found at significant levels in lake sediments and in fox snakes at Point Pelee National Park. High DDT levels have been correlated with reduced frog populations and species loss in several other parks and wildlife reserves along the northern edge of Lake Erie.

Species Loss in Point Pelee National Park

An example of the major issues facing Canada's national parks can be seen in the changes in biodiversity in Point Pelee National Park. Located in Ontario, Point Pelee is among Canada's smallest national parks.

Since 1900, approximately 20 species of reptiles and amphibians have been lost from the park area. There are numerous reasons for this dramatic decline in species but in many cases the disappearances are not fully understood. Factors in species loss include:

- area and isolation - the park is too small to support viable populations of some species.

Point Pelee is isolated by intensive agriculture, roads and housing that surround the park. It is the only island of Carolinian forest protected within a national park.

- pollutants - DDT was used extensively in the 1960s to control mosquitoes, and high residual levels may account for the loss of some species. Groundwater and sewage system monitoring programs indicate that excessive amounts of nitrogen and phosphorus compounds have been transported by groundwater to pollute the park's marshlands. Excessive nutrients in some areas may be a direct result of past cottage development, high visitation and the associated high density of sewage facilities depositing nutrients into the groundwater via out-dated septic systems.

- over-use - with past visitation rates of over 750,000 visitors per year and current visitation rates at over 400,000, human use continues to have a significant impact on this small park. Efforts in recent years to reduce trail development and consolidate facilities and services have improved the situation — and resulted in a deliberate reduction in the number of visitors — but impacts continue due to the still high volume of people in the park.

Among the species lost from Point Pelee is the once-common bullfrog. Only a few years ago, visitors to the park could walk on the marsh boardwalk and hear a chorus of droning bullfrogs. Today that chorus is silent.

Perhaps we cannot address the global problems directly, but we can certainly take care of those stresses that we have created ourselves and that directly affect our protected areas. Until we have put our own house in order, we will have little credibility in addressing global change.

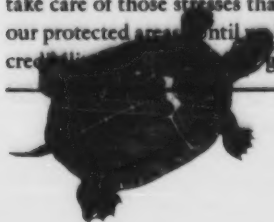
- exotic species - invading non-native species, both plants and animals, cause problems for parks across Canada. In Point Pelee National Park, garlic mustard is invading Carolinian forests and out-competing native species. In Riding Mountain National Park the high number of exotic plant species in the native rough fescue grasslands is a cause for concern as native plants are out-competed by the invaders. In Gros Morne National Park, moose and snowshoe hares introduced to Newfoundland several decades ago are altering habitat and vegetation regimes inside the park.

- over-use - growing levels of human use within most national parks have created crowding, overuse of facilities and infrastructure such as sewage treatment systems, over-development and a myriad of other problems that in turn degrade water and air quality, cause erosion and damage wildlife habitat. In Waterton Lakes National Park, every valley has either a road or a hiking trail — or both.

Only the most northerly parks have not yet been subject to high use demands. Canada's national parks receive over 14 million visits every year. With a predicted annual growth rate of approximately 4.5 per cent, that figure will double in just 15 years. How can our parks withstand such use?

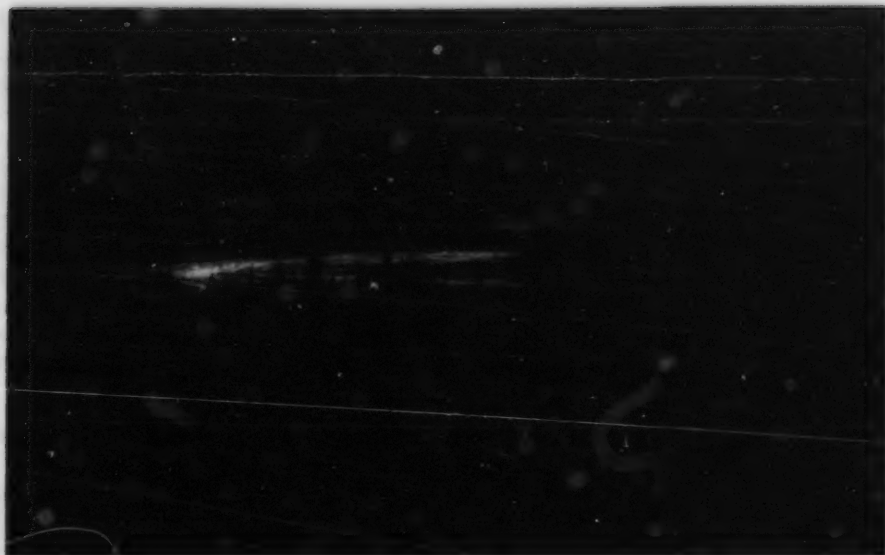


Great blue heron



It is unlikely that protected areas will be able to conserve biodiversity if they are surrounded by degraded habitats that limit gene flow, alter nutrient and water cycles and produce regional and global climate change that may lead to the final disappearance of these "island parks." Protected areas need to be part of broader regional approaches to land management.

**Parks for Life: Report of
the IV World Congress on
National Parks and Protected
Areas, 1992**



National Parks at the Crossroad

How has this situation come about? National parks, by definition, are protected places that we believe are safe from the influences of development and pollution. The concept of protecting national parks unimpaired has been enshrined in the National Parks Act since 1930; the term "ecological integrity" appeared in Parks Canada's own guiding principles in 1979 and in the 1988 amendment to the National Parks Act.

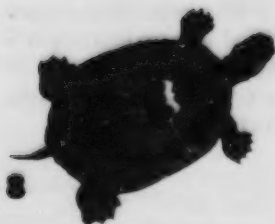
Ecological integrity is the core of Parks Canada's mandate, but Parks Canada alone cannot discharge this mandate without broad support from Canadians. While there have always been people willing to advocate for protected areas — many of whom are acknowledged in the dedication to this report — as a whole Canadians have not understood their individual and collective roles in taking responsibility for our parks.

We cannot blame the past for the current situation. We can recognize that our understanding of natural processes and ecosystems is better now than in bygone days, and that past actions have created many of today's pressures.

We can build upon that understanding to improve the ecological integrity of our national parks today and for the future.

Profound change is needed. It is time now to collectively write a different story for Canada's national parks, from a story of ecological integrity in decline to a story of ecological renewal and restoration. We must learn anew how to be responsible for our parks and for the broader landscape that surrounds them. We must shift our thinking toward a basic respect for life and natural systems, for their own sake.

The concerns and problems threatening our national parks do not add up to "disaster." Nonetheless, they indicate that Canada's national parks are under stress, in some cases extreme stress. These stresses are real and serious although they are not necessarily apparent or immediate. Nature's capacity to absorb injury is not infinite. Without attention and re-direction, we will lose the window of opportunity we currently have to restore the ecological integrity of our parks.



Our parks are at a crossroad.

If we continue on our current path, we risk losing, for all time, access to the experience of protected nature, the wilderness we so cherish. Canadians will be alienated from our own unique

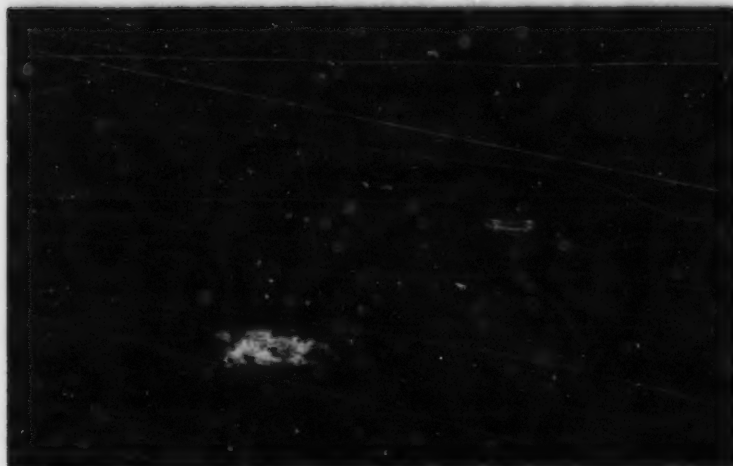
One thing is certain: we cannot hesitate. If we continue to ignore ecological integrity — it will just go away.

submission to the panel

heritage, and future generations will not have "unimpaired" parks to use and enjoy. Protecting our national parks is a huge task, one that we cannot delegate to

Parks Canada alone. It is a national undertaking.

Canada is a wealthy country. We have an enormous land base where wildlife is present at levels no longer found in most other countries. We are resourceful and innovative, we take pride in being thoughtful and careful in our decision-making. Above all, we hold wild places in high esteem. If Canada cannot undertake the task of integrating various demands for development while protecting sacred wild places, who in the world can?



Aftermath of an oil spill in
Gros Morne National Park

Why Do We Need National Parks?

In Canada, we have chosen to preserve and protect portions of that wilderness within national parks. Individuals may value the parks for many and varied

reasons, but all of these reasons are inspired from the richness of life, natural beauty, and cultural significance of parks that make these lands distinct from their surroundings. Over 70 per cent of Canadians identify national parks as icons of national identity. Should national parks become degraded to the point of being indistinguishable from the developed landscapes around them, parks will lose their significance to Canadians. These changes would threaten the very spirit of Canada.

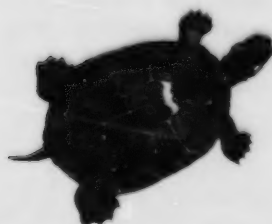
Despite our national identification with wild places, national parks and natural ecosystems are undervalued, or more accurately, mis-valued in our market economy. We know that we need protected areas and wild places but that need is often hard to articulate. More to the point, we cannot attach a price to our parks, so we ask, "What value do these places have?"

National parks play many roles: protection of ecological and biological processes, protection of biodiversity, centres for research and education, providing economic value, and as places that provide recreation, spiritual, cultural, historic and aesthetic benefits. Parks have value in all these realms.

PROTECTING ECOLOGICAL PROCESSES

Parks and protected areas can provide significant benefits even for people living outside these protected areas. Watershed protection and absorption of carbon dioxide are among the ecological processes and services provided by national parks. Parks also support plant and animal species by acting as seed areas to revitalize populations living outside of protected areas.

If we conserve systems that support and sustain life — climate, air quality, water quality and quantity, nutrient cycling, soil creation, biological diversity — we ultimately ensure the security of our own social and economic future.



A caribou grazes by a
major road in Gros Morne
National Park



National Parks as Ecological Benchmarks

The most important role for national parks is to act as benchmarks against which we evaluate change. When we harvest forests, or fish, or grow crops, we need benchmarks to ensure our activities are sustainable. National parks are places where we don't harvest or grow crops. Yes, they are important as places to be in wild nature. But they are even more important as benchmark areas where we understand how our actions are changing the rest of the landscape. National parks are a crucial part of a grand strategy of sustainability.

submission to the Panel

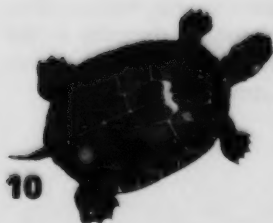
PROTECTING BIODIVERSITY

Internationally, preserving biodiversity has been recognized as an urgent mission for humanity, manifested in the United Nations Convention on Biological Diversity, signed in Rio de Janeiro in 1992. As a signatory to the Convention, Canada has a duty to conserve biodiversity — plants and animals and the habitats and processes that sustain them. Despite this commitment, plant and animal species continue to disappear, for reasons ranging from habitat loss to pollution effects.

In Canada we can reverse the trend, in part, by establishing new parks and by ensuring the viability of our parks. As core areas within a landscape of both protected and manipulated areas, national parks can contribute significantly to maintaining biodiversity. Canada, with our extensive system of national parks and other protected areas, has a unique opportunity and a responsibility to conserve and sustain biodiversity.

CENTRES FOR RESEARCH AND EDUCATION

From wildlife behaviour to natural processes, from vegetation communities to ecosystem interactions, national parks provide exceptional opportunities to learn about how nature works in the absence of broad human intervention. Armed with increased scientific understanding of natural processes, we can more fully understand our own impacts outside of protected areas and determine the limits of acceptable change — how much change we are willing to impose on a given ecosystem before we revise or halt development or resource exploitation. National parks and protected areas can become centres for ecological understanding. We have already missed some opportunities. For example, the native grassland communities of Canada's prairies were virtually gone before anyone thought to protect and study them; as a consequence, Grasslands National Park is now faced with the challenge of restoring vegetation communities without extensive knowledge about those communities.



The fundamental reason for preserving whatever wildness remains on land and in water is the symbolism of the act, the implicit recognition of values beyond humanity, something other than ourselves that ought not to be destroyed, an expression of wonder and awe before the marvellous world that created us and that, once gone, we cannot recreate.

Stan Rowe,
Home Place, 1990



Through research and understanding gained within national parks, we can help improve the management and restoration of developed or damaged landscapes outside of parks and protected areas. Parks also provide opportunities for education, through formal research, through interpretive centres and programs, through outreach programs and through our direct experience of wild places.

PLACES TO ENJOY, TO APPRECIATE, TO CELEBRATE

Wilderness is an idea deeply embedded in the Canadian mind. Even though the majority of us are urban dwellers, we embrace the idea of wilderness and have enfolded that idea into our national identity, national unity, and national pride. We nurture the belief that just beyond our cities and town exists a wild area that makes Canada a better country simply because such wilderness exists. Even our currency depicts landscapes and wildlife.

Our national parks provide opportunities for recreation, for escape from urban environments, for both physical challenge and emotional respite. The concept of human use and enjoyment

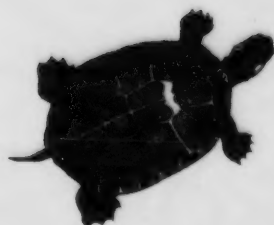
is fundamentally linked with national parks.

The emotional and spiritual value of parks cannot be expressed in monetary terms, but rather in terms of connection, fulfillment, perspective, respect. Our spiritual, cultural, historic and aesthetic needs are satisfied, at least in part, through contact with wild places. We seek wilderness to set our lives and endeavours into perspective against a larger natural backdrop. Wilderness inspires us to create music, art, stories. The spiritual aspects of special places have been fulfilling human need for thousands of years.

Some times, we simply need a place of tranquility and peace, a place where we can be quiet, watch the stars, and listen to something other than our own voices.

ECONOMIC VALUES

Parks generate income and revenue for rural communities, through park-related jobs and a host of associated services in tourism, maintenance, and development of regional infrastructure, thus helping to diversify local economies. Parks attract visitors from across Canada and around the world, who in



Monitoring wolf population
movement through telemetry
at La Mauricie National Park



turn contribute increasing amounts to Canada's economy. Parks may also act as seed areas for species that could have future economic value outside of parks, for subsistence or commercial harvesting for a wide range of purposes.

The economic values of parks reach well beyond direct job creation. For example, studies in Ontario have shown the significant health benefits Canadians enjoy by visiting parks, which in turn reduces health care costs. National parks contain the headwaters of many major river systems; the economic value of clean and plentiful water is immeasurable.

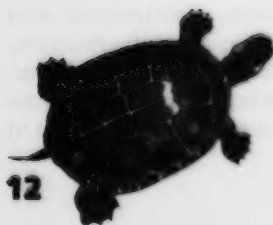
NATURE HAS ITS OWN VALUE

All of the points raised above concerning the value of national parks have a common perspective: these valuations are human-oriented. These points of view assign value to parks only insofar as parks provide benefits — even intangible benefits — to people. Many

Western cultures have divided the world into human and non-human elements, and have assumed that everything that is not human is subservient to us and exists for our exploitation and gain.

Nature has inherent value for its own sake, not for its ability to satisfy human needs. All species and systems of nature deserve respect regardless of their usefulness to humanity.

To ensure the survival of the wildlife and wild places that Canadians cherish, we must require that our institutions that have potential to affect nature show a basic respect for nature, natural processes, and a genuine commitment to coexist with all living things.



Parks Canada staff and Panel members in Riding Mountain National Park



A Call to Action: Parks Canada

Insist on the right of humanity and nature to co-exist in a healthy, supportive, diverse and sustainable condition.

Nilsen, 1993

We need not look backward with regret. We must look forward, with insight. We have before us a tremendous opportunity. Canadians can contribute to our respected place in the world by showing leadership in preserving our national parks as a heritage for ourselves and for the global community, and as special places worthy of protection for their own sake.

Resolving the situation is a matter of accepting responsibility. Together we must recognize our responsibilities, change tactics, and carry on.

Parks Canada bears particular responsibility for leading this change, because they are the people who care for our national parks. Ensuring that national parks are unimpaired — and more specifically, protecting ecological integrity — are concepts clearly stated in the National Parks Act and Parks Canada's own Guiding Principles and Operational

Policies. It is time for Parks Canada to fully embrace the protection of our national parks and to act accordingly.

The way forward presents a significant opportunity for Parks Canada to reposition itself to reflect ecological integrity as the primary objective of the organization in every facet of its operation. This evolution is not the task of just one person or level of the organization — rather it requires all employees to work together. The Panel believes that Parks Canada can build upon the personal commitment that is so evident in so many employees. Parks Canada must build and rely on the advocacy of its 3000 employees — and gain the support of 30 million Canadians.

In Volume II, the Panel makes many strategic and operational recommendations, directed to the Minister and to Parks Canada, for setting a new direction toward restoring ecological



integrity in our national parks. These recommendations fall into several broad categories:

- ensure that protecting ecological integrity is the first priority of all aspects of national parks management.
- re-orient Parks Canada to embrace a learning culture that values knowledge and embraces the natural and social sciences as a means to understand and support ecological processes, and to transmit this knowledge to all Canadians for their use

and benefit.

- re-establish a role for Aboriginal peoples with Canada's national parks.

- advocate for the protection of ecosystems beyond the borders of national parks, by devel-

oping strategic partnerships with non-government organizations, communities, industries, landowners and other governments to establish more sustainably managed larger landscapes, including a national network of protected areas with varying levels of protection.

- communicate to all Canadians what is valuable about national parks and how Canadians everywhere can contribute to protecting our special places.

The Panel presents the following key areas where Parks Canada can begin the journey toward protecting ecological integrity:

MAKE ECOLOGICAL INTEGRITY THE FIRST PRIORITY

Ecological integrity is the lens through which all actions and decisions affecting national parks must be focused. While the priority of protecting ecological integrity is clearly elucidated in the National Parks Act, the Parks Canada Agency Act and in Parks Canada's own

Guiding Principles and Operational Policies, in practice the primacy of ecological integrity in achieving the mandate is not widely understood or followed. In the past this primacy has not guided decision-making at Parks Canada, which in turn has led to the erosion of ecological integrity in national parks. Parks Canada must henceforth unequivocally protect ecological integrity in all actions and decisions and ensure that protecting ecological integrity is the focus of every staff member.

BUILD CAPACITY FOR KNOWLEDGE

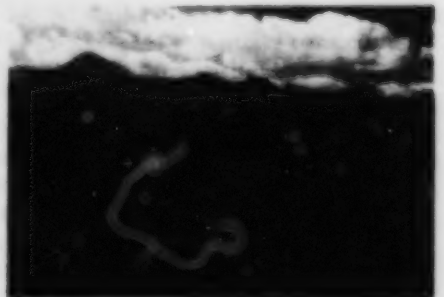
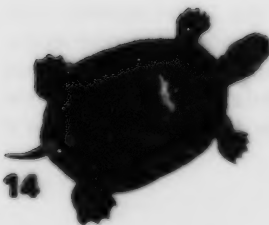
Protecting ecological integrity in national parks has often failed due to a lack of data and information, a lack of natural and social science capacity, and a lack of applying science to park management. Parks Canada must become an organization with a greater natural and social science capacity that actively uses knowledge through evaluation and feedback — in short, learning while doing. Parks Canada must acknowledge uncertainty without becoming stymied by it, then move ahead by acquiring data, by building the scientific capacity to understand the data and by creating mechanisms to measure, evaluate and learn.

Knowledge is also the basis for sound education, interpretation and outreach programs and messages. Parks Canada can play a key role in educating Canadi-

Advocating for Conservation

It is not good enough for Parks Canada to assume a passive caretaker role. Our national parks desperately need an organization that's willing to serve as a forceful and energetic advocate for the values of Canadian heritage.

submission to the Panel



A coal strip mine near the eastern boundary of Jasper National Park

A tour group in Gwaii Haanas National Park Reserve/Haida Heritage Site may be harming intertidal life by merely walking on a beach



ans about ecological integrity and about sustainability. Forming partnerships with universities, industries, provincial and territorial governments, and Aboriginal peoples will help bring knowledge into Parks Canada and provide a mechanism for Parks Canada to share its ecological knowledge.

MANAGE ACTIVELY FOR CONSERVATION

Given the scale of human influence affecting national parks, Parks Canada must increasingly engage in active management of national parks in order to maintain ecological components and processes, and to restore these components and processes where they are needed. Active management initiatives must be researched, supported and monitored to ensure their effectiveness.

BUILD GENUINE PARTNERSHIPS WITH ABORIGINAL PEOPLES

Over half the land area now protected in Canada's national parks has been set aside with the direct involvement of Aboriginal peoples. Aboriginal peoples have a clear role with all national parks although only recently has Parks Canada (and Canadians generally) started to recognize this role.

Healing, building respect and co-operation will shift Parks Canada and its Aboriginal partners away from attitudes and actions based on asserting rights and toward attitudes and actions based on accepting responsibility. Setting such an example can only inspire Canadians as a whole to make a similar shift. As Canadians' respect for Aboriginal peoples grows, so too does our understanding of the traditional ethics and uses of Aboriginal peoples within national parks. Developing true partnerships between Parks Canada and Aboriginal peoples will help ensure the protection of these sacred places and sets an example for other Canadians to follow.

Unlike other areas within the Agency's programs, the implications of under-funding of ecologically-based programs do not readily manifest themselves, making them an easy target for reduction or deferral.

Parks Canada Ontario Service Centre, submission to the Panel



ADVOCATE FOR A NETWORK OF PROTECTED AREAS

Only by sustainably managing broad regions of the land — the air, water, soils, and the processes that link them — can we protect plant and animal species, or unique individuals.

National parks alone cannot conserve

Canada's biodiversity or ecological integrity. To successfully fulfill their mandate, national parks must be nested within a larger, sustainably-managed landscape, including a network of protected areas. To create such a landscape, national parks staff must be allowed and encouraged to advocate on behalf of national parks' interests and values, forming partnerships and networks of understanding such that — like natural ecosystems themselves — the interconnected whole is greater than the sum of the individual parts. Recognizing the need for conservation of greater ecosystems implies responsibility, communication, negotiation, and

mutual respect both within Parks Canada and between national parks and surrounding jurisdictions, especially provincial and territorial governments.

Our network of protected areas must literally be larger than life.

PROVIDE FOR USE WITHOUT ABUSE

National parks must provide meaningful and responsible park experiences without compromising ecological integrity. Appropriate uses and facilities are welcome within national parks, but — perhaps a greater challenge — Parks Canada must also make the hard decisions to phase out, reduce or mitigate uses and facilities that are not found to be appropriate. Human use in national parks must be based on the principle of responsible experience: use without abuse.

BUILD PUBLIC SUPPORT FOR ECOLOGICAL INTEGRITY

Broad public support for Parks Canada's goal — protecting ecological integrity of national parks — is crucial to the achievement of the mandate and to the long-term continuation of that protection. Urban outreach programs (including establishing a Parks Canada presence in urban parks, as will be done in Toronto's Rouge Park) and other methods of communication, such as the Internet, are critical to developing understanding and acceptance of Parks Canada's goals among Canadians at large. One way to make effective connections between urban dwellers and nature is through outreach programs centred on environmental awareness and ecologically-sustainable choices, showing how such choices support ecological integrity not only in national parks but in Canada as a whole.

Haida Gwaii Watchmen

In 1981, members of the Skidegate Band Council and the Haida Nation sent volunteers to several sites to watch over the natural and cultural heritage of these locations, in the face of increasing outside interest in and access to the sites. The Watchmen also provided visitors with insights to Haida culture, and shared songs, stories, dances and teachings with them.

The area containing these sites was declared a Haida Heritage Site in 1985 and a National Park Reserve in 1988. The unprecedented Gwaii Haanas Agreement, approved in 1993, established the terms of area co-management between the Haida Nation and the federal government through Parks Canada. The Haida Gwaii Watchmen program has continued to operate with funding made available through a contract with Parks Canada. The Haida Gwaii Watchmen have worked together with Parks Canada to create a training and development plan that is now being implemented. Parks Canada staff at Gwaii Haanas work closely with the Watchmen and support the spirit and educational aspects of the program.

One of the first
Haida Gwaii Watchmen



**Farming next to the boundary
of Riding Mountain National
Park**



Industry Leadership

Parks must become centres of learning and study of ecological processes to provide answers for those who wish to manage in the best ecological way possible. Parks must create research groups in partnership with universities and industry to build the body of knowledge necessary.

industry association,
submission to the Panel

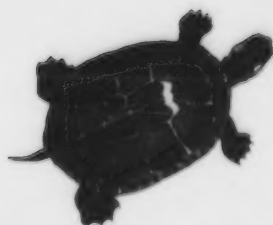
Maintenance and restoration of ecological integrity can only be achieved when park staff, visitors, neighbours and Canadians at large understand, appreciate and take action toward protection and sustainable practices. Interpretation is the heart and soul of building national parks' core values and must be charged with the importance of communicating about ecological integrity. To achieve this end, interpretation and outreach must become core activities in Parks Canada and be professionally staffed and supported in such a way as to achieve this mandate within the parks and with the public at large.

**RESOURCES FOR
ECOLOGICAL INTEGRITY**

Successful implementation of the various programs, initiatives and recommendations contained in Volume II of the Panel's report will require committed, long-term support from the federal government in terms of finances and resources.

Parks Canada needs to support its dedicated employees through finding and assigning the financial and human resources required to further the cause of ecological integrity. Improving and retaining a skilled and continuously-learning workforce will require upgrading and investment, enabling Parks Canada to do its job better.

**Logging near Pacific Rim
National Park Reserve**



A Call to Action: All Canadians



La Mauricie National Park

What can Canadians do?

Each of us has a role in ensuring that our national parks continue to hold their significant places in our landscapes and in our hearts. In working collectively to ensure the viability of our national parks, we and our governments can create a future that includes access to the natural experience so integral to and distinctive in our national identity. This mission can enable Canada's natural wonders in every region of the country to be shared, explored, experienced, treasured and celebrated by all Canadians.

The Panel offers the following suggestions for action:

INDIVIDUALS

The more Canadians learn about the stresses facing our parks, the more our support for ecological integrity will grow. National parks need people who will stand up for conservation and who can make informed choices regarding park use. The Panel urges Canadians to learn about national parks and how to support ecological integrity. Use parks with respect and responsibility.

GOVERNMENTS

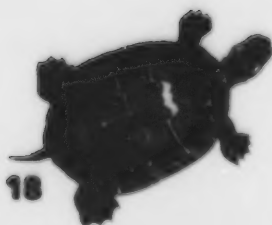
Approximately 95 per cent of Canada is owned or controlled by the Crown — federal, provincial and territorial governments. Intergovernmental co-operation is essential to developing a sustainable landscape that includes a mosaic of protected areas; influencing decisions and initiating sustainable actions and developments is a new role that all governments can and must play if Canadians are to continue to have access to the natural experience.

ABORIGINAL PEOPLES

First Nations governments have a large and ever-increasing role in the development of a sustainable landscape incorporating a network of protected areas. Particularly in Canada's North, and in areas where comprehensive land-claims agreements have brought the influence of Aboriginal peoples back into the national parks picture, forming partnerships with First Nations governments and with Aboriginal individuals or communities is fundamental to ensuring the successful protection of national parks. Parks Canada and several First Nations have already developed innovative partnerships for co-operative management of protected areas.

COMMUNITIES

Urban developments and infrastructure, both within and adjacent to national parks, are sources of stress to national parks due to habitat loss and fragmentation, and impacts on air and water quality. Community initiatives to overcome or avoid these stresses hold huge potential for improving the ecological integrity of national parks.



NON-GOVERNMENTAL ORGANIZATIONS

National, regional, provincial and local organizations are already working to promote partnerships and to foster accords between key players with the goal of developing a network of protected areas. Environmental non-governmental organizations have a key role to play in landscape management initiatives.

PRIVATE LANDOWNERS

Private landowners' stewardship of their lands has much to contribute to the development of a sustainable landscape and a protected areas network. Those who choose to practice sustainable living and management on their land, and who protect their lands through such means as conservation easements, have a direct and large contribution to make in the protected-areas landscape.

BUSINESS AND INDUSTRY

The successful development of a sustainable landscape depends upon co-operation and support from the many businesses and industries that provide Canadians with jobs, materials and products. Industry has much to contribute in the area of sustainable development and land use decisions outside of parks. There is tremendous potential for innovative partnerships between Parks Canada and industries such as forestry, agriculture and resource extraction.

The Path Before Us

Parks Canada can build on its culture of learning and promoting conservation values to help instill these values in all Canadians. We treasure protected areas; we must grasp that such areas are finite and endangered. The only way to protect wilderness in the long term is through sustainable actions both inside and outside of national parks. Creating partnerships to protect ecological integrity is a way for national parks to illustrate to Canadians how we

must think across borders and develop networks.

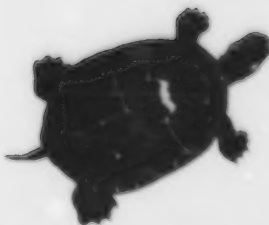
The Panel on Ecological Integrity believes that Canadians are willing to take responsibility to treat all lands with respect so that we may protect our most sacred places *"unimpaired for the enjoyment of future generations."* It is for Canadians and our governments to make a clear, far-sighted commitment to the values of national parks and protected areas. Without a firm, long-term commitment, the sound management of our parks will fall short of the goal to protect ecological integrity. The federal government must show leadership in this regard to continue the work started by the visionaries to whom this report is dedicated.

Human contact with wilderness is vital. Wilderness challenges us, alters our perspectives, helps us find our place in the world. Wilderness can and does change our lives.

The Panel advocates accepting responsibility: individuals, corporations, communities, organizations and governments must recognize that each has its own special responsibility to protect Canada's wild places. By protecting our national parks we are assisting in the broader goal of protecting natural places worldwide — literally, protecting ecological integrity with national parks.

We live in a web of interconnected ecosystems. Given that most of us live in cities, our contact with and understanding of nature's remarkable interconnectedness is tenuous at best. But if we heed the warning signals from our imperiled national parks, we can reverse the trends. We can build on successes, partnerships and initiatives already in place. We can, together, renew our union with natural environments and in so doing, work together to protect our sacred places, our national identity and our place in the world community.

Now is the time for action.



Challenges

We, the Panel on the Ecological Integrity of Canada's National Parks, in a spirit of respect, co-operation and affection, challenge Parks Canada with these tasks:

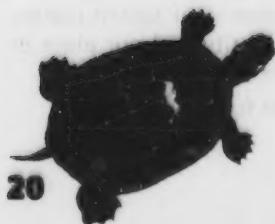
- To empower the spirit of ecological integrity within Canada's national parks.
- To create a spirit of learning and teaching for everyone in the Parks Canada family, to understand and acknowledge your responsibility for ecological integrity.
- To examine the manner in which you work and to look for new ways of keeping your responsibility to ecological integrity.
- To forge new tools to protect ecological integrity by knowing the land, questing for knowledge, and maintaining the spirit of ecological integrity.
- To integrate Aboriginal peoples into the family of Parks Canada as trusted and knowledgeable friends within the spirit of ecological integrity.
- To inspire in your neighbours an understanding of your responsibility to ecological integrity within national parks.
- To build a spirit of ecological integrity which will unite the isolated places of the land into a mosaic that protects ecological integrity.
- To bring into being a way of teaching about the land that strengthens the spirit of ecological integrity.
- To welcome responsible activities that generate a greater spirit of ecological integrity while discouraging uses that create disharmony.
- To walk softly upon the land in all actions and deeds.
- To generate the needed equity to strengthen the spirit of ecological integrity, without which your responsibility to the land cannot be fulfilled.

We, the Panel on Ecological Integrity, are willing to work with you to meet these challenges.

Highlights

The following highlights are drawn from recommendations made throughout Volume II of the Panel's report. Recommendation numbers are shown in parentheses.

The Panel on the Ecological Integrity of Canada's National Parks recommends that: Parks Canada transform itself, by confirming ecological integrity as the priority for Canada's national parks and as the explicit responsibility of every staff member through new training, staffing, decision-making and accountability structures. (2-1, 2-4)



Parks Canada revise and streamline its planning system to focus on ecological integrity as the core of strategic and operational plans. (3-3)

The Minister direct Parks Canada to take immediate action to convert existing wilderness zones in national parks into legally designated wilderness, as provided by the National Parks Act. (3-11)

Parks Canada significantly enhance capacity in natural and social sciences, planning and interpretation, to effectively manage for, and educate society about, ecological integrity in national parks. Develop partnerships with universities, industries, Aboriginal peoples, and other learning-based agencies. (4-1, 4-3, 4-4, 4-6)

Parks Canada undertake active management where there are reasonable grounds that maintenance or restoration of ecological integrity will be compromised without it. Key actions are required in the areas of site restoration, fire restoration, species management and harvest. (5-1, 5-2, 5-3, 5-4, 5-8)

Parks Canada initiate a process of healing with Aboriginal peoples. Adopt clear policies to encourage and support the development of genuine partnerships with Aboriginal peoples in Canada. (7-1, 7-2)

Parks Canada develop partnerships that encourage the conservation of parks as part of larger regional ecosystems. Seek provincial and territorial co-operation to establish a comprehensive protected areas network. Work with other jurisdictions, industry and the public to find solutions on maintaining ecological integrity. Support these solutions with a fund dedicated to conservation efforts in the greater park ecosystems. Advocate for park values and interests in the greater ecosystems. (8-1, 9-1, 9-3, 9-6, 2-9)

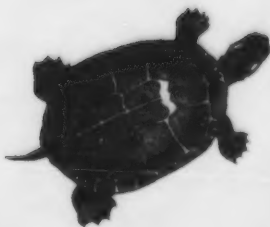
Parks Canada develop an interpretation strategy that presents clear and consistent messages about ecological integrity. (10-1)

Parks Canada cease product marketing to increase overall use of parks and concentrate instead on social policy marketing and demarketing when appropriate. (10-7)

Parks Canada develop a policy and implement a program for assessing allowable and appropriate activities in national parks, with ecological integrity as the determining factor. (11-1)

Parks Canada reduce the human footprint on national parks so that parks become models and showcases of environmental design and management. (12-4)

Following the taking of first steps to improve the broader management framework for ecological integrity within Parks Canada, allocate substantial new and additional resources to implement the Panel's recommendations on improving science and planning capacity, active management, monitoring, partnerships with Aboriginal peoples, stewardship initiatives in greater park ecosystems, and interpretation. Fund the establishment and operation of new parks from new resources. Enable management decisions in support of ecological integrity to be separated from revenue implications. (13-1, 13-2, 13-4, 13-9)



The Panel on the Ecological Integrity of Canada's National Parks:

Louis Bélanger

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Stephanie Cairns

Stephanie Cairns

Jacques Gérin

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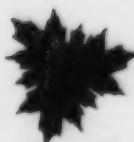
Pamela Wright, Vice-Chair

Protection de l'intégrité écologique
par les parcs nationaux du Canada

« Intacts pour les générations futures »?

Volume I
le temps d'agir

Commission sur
l'intégrité écologique
des parcs nationaux
du Canada



Panel on
the Ecological
Integrity of Canada's
National Parks

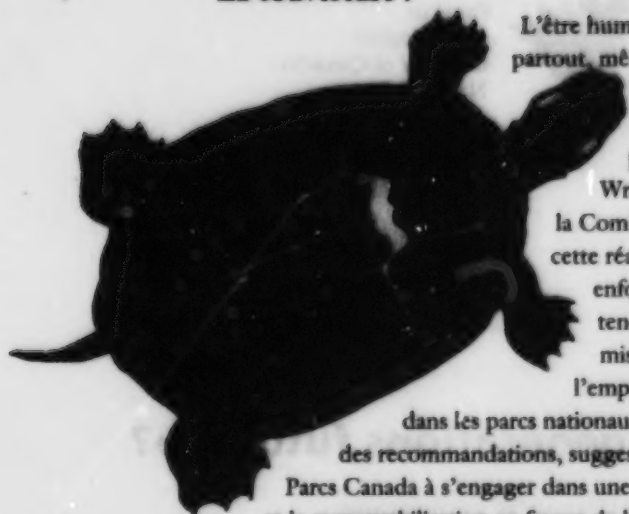
« Intacts pour les générations futures »?

Protection de l'intégrité écologique
par les parcs nationaux du Canada

Volume I : le temps d'agir

Canada

La couverture :



L'être humain a laissé son empreinte partout, même dans les milieux que les Canadiens considèrent comme « sauvages ». Cette photo, prise par Pamela Wright, la vice-présidente de la Commission, met en lumière cette réalité : l'empreinte de pied enfoncé dans un tapis de mousse tendre. Le rapport de la Commission souligne l'envergure de l'empreinte écologique, évidente

dans les parcs nationaux du Canada, mais propose des recommandations, suggestions et solutions pour aider Parcs Canada à s'engager dans une ère nouvelle où les actions et la responsabilisation en faveur de l'intégrité écologique permettront d'atteindre le but fondamental de protection des lieux les plus spéciaux du Canada, pour le bénéfice des générations futures.

L'image de la tortue : Plusieurs peuples autochtones croient que sa grande longévité procure à la tortue connaissances et sagesse. Selon la culture Haudenosaunee, la Femme Céleste a créé le monde sur le dos d'une tortue. L'Amérique du Nord est désignée « l'Île de la Grande Tortue » par plusieurs peuples autochtones. L'image de la Tortue a été insérée partout dans le rapport en tant que symbole de sagesse, de respect et des liens traditionnels avec la Terre.

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TABLE des MATIÈRES

Lettre à la ministre	v
Remerciements	vi
Volume I : Le temps d'agir	1
Dédicace : Aux visionnaires	1
Ce rapport	2
Les parcs nationaux du Canada.....	3
Une crise? Quelle crise?.....	5
Les parcs nationaux à l'heure des choix.....	8
Pourquoi avons-nous besoin de parcs nationaux?.....	9
Le temps d'agir : Parcs Canada.....	13
Le temps d'agir : la population canadienne.....	18
La voie à suivre.....	19
Défis et points saillants.....	20
Signatures	22

Le 15 février, 2000

L'honorable Sheila Copps, C.P., députée
Ministre du Patrimoine canadien

Madame la Ministre,

Alors que la plupart des gens considèrent que les parcs nationaux du Canada, en raison même de leur désignation, constituent des refuges que rien ne peut altérer, vous avez pressenti que leur protection n'était pas aussi assurée que la population canadienne pouvait le croire et qu'un examen en profondeur du réseau tout entier était devenu nécessaire.

En novembre 1998, prenant appui sur les travaux du Groupe d'étude de la vallée de la Bow dont le rapport vous avait été remis en 1996, vous avez confié à la Commission sur l'intégrité écologique des parcs nationaux du Canada le mandat d'examiner les enjeux liés à l'intégrité écologique dans les parcs nationaux afin de vous conseiller sur la voie à suivre.

Les résultats de notre étude confirment vos impressions : nos parcs nationaux sont menacés par des stress venant tant de l'intérieur que de l'extérieur des parcs. À moins d'agir dès maintenant, la dégradation se poursuivra dans l'ensemble du réseau.

Nous en sommes venus à cette conclusion en interrogeant des représentants de Parcs Canada, et leurs partenaires, ainsi que des représentants des collectivités rencontrés dans le cadre d'ateliers tenus dans des parcs nationaux et des villes avoisinantes, d'un océan à l'autre. Nous avons complété nos connaissances au contact de gens qui travaillent dans des parcs, fréquentent des parcs, vivent à proximité d'un parc ou habitent une région urbaine. Nous avons aussi beaucoup appris au contact d'Autochtones, d'organisations non gouvernementales, d'agriculteurs et d'éleveurs, ainsi que de représentants des industries minière, forestière, touristique et autres.

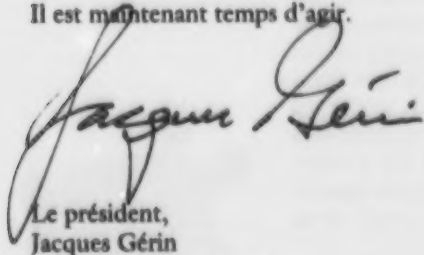
Toutes les personnes que nous avons rencontrées s'entendent pour affirmer que la mission prioritaire de Parcs Canada est de protéger l'intégrité écologique des parcs nationaux du Canada de façon à ce qu'ils demeurent intacts pour les générations futures.

Nous décrivons dans notre rapport des problèmes et défis que Parcs Canada doit surmonter dans l'exécution de son mandat et nous applaudissons aussi ses succès.

Notre rapport se veut avant toutes choses un appel à l'action, un défi que nous lançons à vous et à vos collègues, à l'Agence Parcs Canada ainsi qu'à tous les Canadiens, pour que cette mission prioritaire soit remplie et que nous soyons tous à la hauteur de notre responsabilité collective à l'égard des parcs nationaux - et des générations futures.

Nous avons beaucoup appris au cours de ce grand périple. Ce fut un privilège dont nous vous remercions.

Il est maintenant temps d'agir.



Le président,
Jacques Gérin

Remerciements

La Commission sur l'intégrité écologique des parcs nationaux du Canada tient à remercier de leur contribution toutes les personnes qui ont pris le temps de soumettre des communications à la Commission, soit verbalement, soit par écrit, ou de fournir des renseignements sur demande ou à la suite d'arrangements contractuels. Nous avons eu le privilège, d'un bout à l'autre du Canada, de nous mettre à l'écoute de centaines d'individus préoccupés par l'avenir des parcs nationaux du Canada. Qu'ils proviennent de représentants gouvernementaux ou de porte-parole d'organisations non gouvernementales, d'Autochtones, d'industriels, d'agriculteurs, de forestiers, d'universitaires ou de membres du personnel des parcs, tous ces commentaires nous ont paru le fruit d'une grande perspicacité et d'une mûre réflexion. Cette réponse de même que les suggestions que nous avons reçues ont dépassé nos attentes; notre rapport en témoigne. La Commission désire remercier tout spécialement les membres du personnel de l'Agence Parcs Canada pour leur franchise, leur honnêteté et leur dévouement, sans lesquels la Commission n'aurait pu mener son travail à bonne fin.

Nous remercions aussi de tout cœur les membres du secrétariat de la Commission, qui ont travaillé sans relâche pour obtenir des renseignements, organiser les réunions, les ateliers et les déplacements, en plus de contribuer à nos travaux de mille et une façons.

Note de la rédactrice

Les membres de la Commission, les conseillers internationaux et les membres du secrétariat ont collaboré individuellement à ce rapport par leurs mots, leurs idées et leur énergie. Même si la rédaction n'a pas été le fait d'une seule personne, certains membres se sont chargés de rédiger des chapitres particuliers. Les textes ne sont pas homogènes à dessein, mon intention ayant été de permettre aux voix passionnées des membres de la Commission de s'adresser directement au lecteur.

Les membres de la Commission ont inclus de nombreuses citations provenant de documents publiés, ou de commentaires soumis verbalement ou par écrit au cours des nombreuses réunions et rencontres qui ont eu lieu dans les parcs nationaux ou ailleurs au pays. Puisque nombre de ces commentaires ont été transmis confidentiellement, afin que les sujets délicats puissent être traités ouvertement et franchement, la Commission a jugé bon de ne pas révéler l'identité de leurs auteurs, mais de préciser simplement qu'il s'agissait en pareils cas d'un « commentaire soumis à la Commission ».

Dans la présentation des deux volumes du rapport, j'ai utilisé les conventions suivantes:

- les textes en italique indiquent une citation intégrale ou sa traduction;
- les encadrés sont de courts textes qui se distinguent du texte principal par des lignes horizontales à leur sommet et à leur base. Ils présentent de l'information ou des détails supplémentaires pour compléter le texte principal;
- les recommandations de la Commission sont mises en évidence par une bande noire au début de chaque groupe.

Photos

Blackbird Design : pages 4 (haut), 5; Parcs Canada : pages 6 (haut), 7, 17 (haut); J. Pleau/Parcs Canada : page 12, 18; H. Quan : pages 4 (bas), 11, 15, 16; P. Wilkinson : pages 3, 6 (bas), 8, 9, 10, 13, 17 (bas); P. Wright : couverture, page 2

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**« Intacts pour les générations futures »
Protection de l'intégrité écologique par les parcs nationaux
du Canada
Volume I : le temps d'agir**

*« Nous avons tous, chacun de nous, quelques lieux privilégiés pour
appréhender le monde, pour juger de notre position sur la planète, pour
saisir la ligne de fusion du temps et de l'espace. »*

Pierre Morency, 1992

Dédicace: Aux visionnaires

Les parcs nationaux du Canada ont été créés pour protéger à perpétuité des territoires qui rappellent aux Canadiens le sens profond de leur identité.

Les parcs nationaux suscitent en nous des sentiments d'espoir pour l'avenir. Ils nous aident à comprendre le passé. Ils démontrent l'attachement que les Canadiens ont avec la terre et l'état dans lequel nous la conservons. C'est dans les parcs que nous retrouvons cette partie de notre être qui vibre à la vue des grands espaces et de la nature sauvage et majestueuse.

Le Canada a bénéficié de l'engagement consenti par de nombreux Canadiens d'hier et d'aujourd'hui en faveur des parcs nationaux. Ces parcs, qui font l'envie du monde entier, où Canadiens et visiteurs de l'étranger peuvent célébrer, apprécier et découvrir la nature, constituent un patrimoine durable que nous devons à ces visionnaires.

Qui sont ces visionnaires? Il s'agit tout d'abord des premiers explorateurs qui, éblouis par la beauté spectaculaire des paysages remarquables du Canada, jetèrent les bases du réseau de parcs nationaux. Puis ce sont les représentants des gouvernements à tous les échelons qui ont pris les mesures énergiques nécessaires pour établir et protéger les parcs nationaux. Il ne faut pas oublier, au nombre de ces visionnaires les autochtones et les gouvernements des Premières Nations, qui apprécient la valeur des lieux sauvages et peuvent nous en apprendre beaucoup sur le respect et le sens des responsabilités.

Sont autant de visionnaires les gens qui aiment la nature sauvage et se dévouent, au sein d'organisations non gouvernementales, de groupes communautaires et d'autres organismes, pour défendre les parcs nationaux. Les dirigeants de ces groupes, en collaboration avec l'industrie forestière, celle de l'agriculture et d'autres secteurs, ont fait montre de prévoyance et de générosité en aidant à protéger nos parcs nationaux par leur influence et leurs décisions.

Le personnel des parcs nationaux mérite pour sa part des éloges particuliers. En effet depuis la création du premier parc en 1885, le personnel des parcs nationaux s'est dévoué pour assurer la protection de ce réseau de parcs, qui représente aujourd'hui de nombreux paysages typiques du Canada. Soumis à de nombreuses pressions venant de divers milieux afin qu'il règle d'épineuses questions d'aménagement et de conservation, le personnel de Parcs Canada continue à chercher les moyens d'améliorer l'intendance des parcs nationaux. Grâce à leur vision, leur détermination, leur sens de l'innovation et la passion qu'il vouent à la nature sauvage du Canada, les efforts de beaucoup d'entre eux ont été couronnés de succès.

Finalement, chaque Canadien a contribué à sa façon à l'histoire des parcs nationaux. Nous attachons beaucoup de valeur à la nature sauvage, et les parcs comptent parmi les plus importants symboles de notre identité nationale. Dans un avenir très proche, une génération tout au plus, nos propres actes et décisions auront déterminé dans quelle mesure nous aurons joint les rangs des visionnaires.



Activité d'interprétation sur
les insectes aquatiques



Ce rapport

La Commission sur l'intégrité écologique a été créée en novembre 1998 par l'hon. Sheila Copps, ministre du Patrimoine canadien, afin de cerner

les enjeux, de faire le point sur l'approche de Parcs Canada pour assurer le maintien de l'intégrité écologique et enfin, de recommander des améliorations. Les membres de la Commission ont visité des parcs nationaux représentatifs du réseau pour discuter avec le personnel et d'autres Canadiens intéressés. Sur place, ils ont constaté les problèmes et facteurs de stress qui menacent nos parcs nationaux, et recherché les solutions les plus appropriées.

Un rapport détaillé comportant des recommandations précises adressées à la ministre et à l'Agence Parcs Canada constitue le fruit de ce périple. La Commission a voulu cependant partager l'essentiel des résultats de ses travaux

et la portée de ses recommandations avec un auditoire plus vaste. Par conséquent, le rapport de la Commission se présente en deux volumes:

- « Volume I: le temps d'agir » est un document d'ensemble sur les valeurs que nous risquons de perdre en raison des menaces sérieuses qui pèsent sur nos parcs nationaux; il précise le rôle que chaque Canadien et particulièrement chaque membre de Parcs Canada peuvent jouer et les principales mesures que chacun peut prendre pour contrer ces menaces.

- « Volume II: une nouvelle orientation pour les parcs nationaux du Canada » cerne des enjeux et problèmes particuliers et formule des recommandations précises à l'intention de la ministre et de Parcs Canada sur les moyens à prendre pour apporter les solutions qui s'imposent.

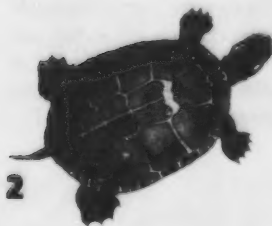
Bien que l'Agence Parcs Canada soit chargée des canaux historiques, des lieux historiques nationaux et d'autres lieux ou structures, le terme « Parcs Canada », tel qu'il est employé dans ce rapport, vise les services et divisions de l'Agence dont relèvent les parcs nationaux.

Définition de l'intégrité écologique

La Commission définit l'intégrité écologique comme suit:

« C'est l'état d'un écosystème jugé caractéristique de la région naturelle dont il fait partie, plus précisément par la composition et l'abondance des espèces indigènes et des communautés biologiques ainsi que par le rythme des changements et le maintien des processus écologiques. »

Bref, les écosystèmes sont intègres lorsque leurs composantes indigènes (plantes, animaux et autres organismes) et leurs processus (tels que la croissance et la reproduction) sont intacts.



La réserve de parc national Pacific Rim, dont la nature paraît vierge, est néanmoins menacée par de nombreux stress écologiques.



Les parcs nationaux du Canada

Le réseau de parcs nationaux du Canada est vaste: on en comptait 39 au moment d'écrire ces lignes. Ils représentent 25 des 39 régions naturelles terrestres du pays. De Terra-Nova, dans l'est, à Gwaii Haanas, dans l'ouest, et de Quttinirpaaq, à l'extrémité nord de l'île d'Ellesmere, à Pointe-Pelée dans le sud, ce réseau à nul autre pareil fait la fierté des

— et l'un des premiers au monde. La Division des parcs du Dominion (aujourd'hui l'Agence Parcs Canada) a été mise sur pied en 1911 et fut la première organisation au monde chargée de gérer des parcs nationaux. Au fil des ans, le Parlement a ajouté de nombreux parcs au réseau, dont vingt depuis 1970, soit plus de la moitié du total actuel.

Nous avons besoin d'un modèle écologique pour l'ensemble des parcs nationaux du Canada. L'étude sur la vallée de la Bow à Banff a sonné la charge, aussi avons-nous l'intention de rallier les troupes dans tous les parcs du Canada pour assurer que la préservation de leur intégrité écologique soit prioritaire.

L'hon. Sheila Copps, ministre du Patrimoine canadien, octobre 1999

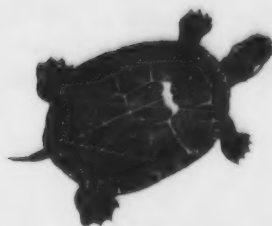
Canadiens. Il comprend des sites du patrimoine mondial (tels que Gros-Morne, Wood Buffalo et les quatre parcs des Rocheuses). Les zones humides protégées dans certains de nos parcs sont reconnues pour leur importance internationale et leur forte productivité biologique (par exemple, la plaine Old Crow dans le parc national Vuntut). D'autres parcs font

partie d'un réseau international de réserves mondiales de la biosphère (réserve de la biosphère internationale Waterton-Glacier et réserve de la biosphère du Mont-Riding.)

Banff, dont l'établissement sous le nom de parc national des Montagnes-Rocheuses remonte à 1885, fut le premier parc national au Canada

Les mots suivants figuraient déjà dans la première Loi sur les parcs nationaux, adoptée en 1930: « (les parcs sont) par les présentes dédiés au peuple canadien pour son bénéfice, son instruction et sa jouissance... et... les parcs nationaux doivent être entretenus et utilisés de manière qu'ils restent intacts pour la jouissance des générations futures ». Ainsi nous était léguée l'obligation de protéger les parcs.

Le réseau de parcs nationaux du Canada est un reflet de la démarche de protection de la nature qui se développe en Amérique du Nord depuis 125 ans. L'idée de créer des parcs nationaux prit forme à la fin des années 1800, au cœur de la révolution industrielle; on considérait cette mesure comme un antidote aux effets de l'industrialisation débridée. Au Canada, le parc national des Montagnes-Rocheuses, à l'instar du parc Yellowstone aux États-Unis,



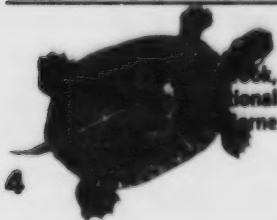
Le lac Cameron, situé dans
le parc national des
Lacs-Waterton

Le parc national Kejimikujik remporte un prix d'écologie

En novembre 1999, le parc national Kejimikujik et son gestionnaire des sciences et des écosystèmes ont reçu du Conseil canadien des aires écologiques le prestigieux Gold Leaf Award, accordé en reconnaissance « des efforts et des réalisations hautement remarquables qui ont contribué considérablement à la conservation et à la compréhension de la diversité écologique du Canada ». Le parc Kejimikujik a obtenu ce prix notamment en raison du développement d'une méthode scientifique améliorée concernant la conservation des écosystèmes.

Selon le président du Conseil canadien des aires écologiques, « l'impact et les répercussions de l'activité scientifique dans le parc débordent très largement les limites officielles de l'aire protégée. Kejimikujik représente bien plus que le parc national lui-même; c'est le catalyseur qui a permis à beaucoup d'organismes et de professionnels de jumeler leurs talents et connaissances spécialisées pour se pencher sur des dossiers aussi difficiles que les précipitations acides et la biodiversité. »

Extrait d'un article paru
dans le Yarmouth Vanguard du
16 novembre 1999



fut créé pour préserver la beauté naturelle de certains lieux pour qu'elle soit appréciée par la population.

Les parcs nationaux furent bientôt perçus comme étant des refuges pour la conservation de la faune autant que celle des paysages. La première étude sur les animaux sauvages fut effectuée à Banff un an seulement après la création du parc. À cette époque, la mise en place de structures importantes pour accueillir les nombreux visiteurs ne suscitait pas d'interrogations en ce qui concerne la protection de la faune. D'autres parcs ont été établis expressément pour la protection de la faune (le parc national Wood Buffalo en est un exemple). Des processus naturels tels que le feu, dont les conséquences étaient jugées désastreuses,

furent supprimés. Des prédateurs, que l'on croyait « mauvais », furent exterminés. Des poissons exotiques furent introduits pour favoriser la pêche sportive.

Au cours des années 1960, alors que les connaissances écologiques se développaient, on adopta la première politique sur les parcs nationaux afin d'orienter les méthodes de protection et l'activité humaine. Avec le temps, on reconnut l'importance des prédateurs pour l'écosystème et l'on comprit que le feu était un processus naturel qui contribuait au renouvellement de la forêt.

À la même époque, au-delà des limites des parcs, les terres étaient soumises à des formes de développement de toutes sortes; sous l'effet de la croissance des villes, de l'agriculture et de l'industrie, elles ont été radicalement modifiées. Pour sa part, la conservation, en tant que discipline scientifique, a évolué. Nous comprenons maintenant mieux les fonctions des écosystèmes et les stratégies de conservation, ce qui modifie nos attitudes à propos des parcs nationaux, ainsi que de la préservation et de l'utilisation des ressources à l'extérieur des aires protégées. Nous savons dorénavant que les espaces sauvages du Canada ne sont pas illimités et que même les endroits protégés ne sont pas à l'abri de changements indésirables.



Le golf est au nombre des activités pratiquées dans le parc national des Lacs-Waterton.



Une crise? Quelle crise?

Si Parcs Canada et les provinces n'y consacrent pas plus d'efforts, nos parcs de montagnes ressembleront aux Alpes, des paysages d'une grande beauté, mais sans aucune intégrité écologique.

Commentaire soumis à la Commission par un chercheur scientifique

La Terre évolue à une cadence rapide. Au moment même où la Commission ébauchait son rapport, la planète franchissait le cap des six milliards d'habitants; on prévoit qu'elle atteindra neuf milliards de personnes dans 50 ans seulement. L'activité humaine est tellement dominante que la plupart des écosystèmes du monde ploient sous le stress. L'être humain laisse son empreinte partout, sur les sols, les bassins hydrographiques et les aquifères et, à une plus grande échelle, sur les océans et le climat.

Les plantes et les animaux qui partagent la planète avec nous subissent les effets dramatiques de cette cohabitation. Ainsi, d'après une estimation de l'Union mondiale pour la nature (UICN), une espèce végétale sur huit est menacée d'extinction dans le monde.

De nombreux Canadiens sont convaincus que les parcs nationaux abritent des forêts et une toundra sans fin, des lacs immenses et de grands fleuves ainsi que des terres protégées qui s'étendent au-delà de l'horizon. Or les

apparences sont souvent trompeuses: de graves problèmes se cachent derrière cette merveilleuse façade de pics majestueux, de lacs miroitants, de glaciers étincelants et des vagues qui déferlent sur les plages avec fracas.

Les Canadiens croient, souvent à tort, que les milieux sauvages sont illimités et que ce sont des milieux intègres, non modifiés par l'action de l'être humain. En fait, les parcs nationaux sont menacés par de nombreux stress, dont un bon nombre proviennent de l'extérieur des parcs, voire de l'extérieur du pays. Parcs Canada, dans son Rapport sur l'état des parcs de 1997, a même relevé d'importantes menaces dans presque tous les parcs nationaux du pays; des 38 parcs compris dans le réseau à ce moment-là, tous sauf un ont signalé la présence de stress et la perte d'intégrité écologique.

Le Canada, et nos parcs nationaux, font partie d'un monde où les changements environnementaux et les perturbations sont légion. Comme la faune et les processus naturels font fi des frontières artificielles, les perturbations qui



prennent leur origine à l'extérieur des parcs nationaux influent sur les écosystèmes des parcs. Nos parcs nationaux sont des symboles de notre identité – mais ce sont aussi des indicateurs écologiques. En fait, les stress écologiques observés à l'intérieur des parcs nationaux nous avertissent de la présence d'agressions beaucoup plus répandues et bien plus graves qui se répercutent déjà sur une bonne partie du territoire canadien.

Voici quelques-uns des enjeux d'origine interne et externe auxquels les parcs du Canada sont confrontés.

- **Disparition d'habitats** – au Canada, plus de 90 pour cent des forêts caroliniennes ont fait place à des terres agricoles ou à des lotissements urbains. Dans les Prairies, 99 pour cent des communautés d'herbes hautes indigènes et 75 pour cent des prairies d'herbes mixtes ont disparu. Dans le

Canada Atlantique, 65 pour cent des marais littoraux ont été drainés ou remblayés. Dans la zone boréale du pays, seulement 35 pour cent des forêts n'ont pas été perturbées. Un grand nombre d'espèces canadiennes sont menacées de disparition, en raison notamment de la perte d'habitats.

- **Fragmentation d'habitats** – la fragmentation des habitats restants est aussi grave que leur disparition. Beaucoup d'espèces, du grizzli à l'écureuil volant en passant par la salamandre, survivent difficilement dans des habitats

fragmentés.

La fragmentation se produit (même à l'intérieur des parcs) en raison du développement urbain, d'installations diverses, des sentiers, des routes et des voies ferrées. Les routes et voies ferrées sont d'ailleurs directement responsables de la mort d'animaux sauvages. Des centaines de grands mammifères ainsi que des milliers d'oiseaux, d'amphibiens et d'autres espèces animales sont tués chaque année sur les routes des parcs.

- **Perte de grands carnivores** – partout au Canada, notamment dans la partie sud,

de grands carnivores disparaissent ou sont absents, ce qui perturbe complètement les cycles et rapports de dépendance entre prédateurs et proies. Même si les grands carnivores sont protégés à l'intérieur des parcs nationaux, ils sont menacés par des facteurs de stress tels que l'activité humaine et le développement à l'intérieur des parcs, de même que la chasse, l'utilisation des terres et d'autres sources de stress présentes à l'extérieur des limites des parcs.

De l'Ontario aux provinces Atlantiques, les loups ont complètement disparu des parcs nationaux, sauf dans le parc Pukaskwa et celui de la Mauricie. Dans l'Ouest canadien, on ne trouve plus de loups dans le parc Elk Island ni dans celui des Prairies. Dans plusieurs parcs nationaux (Mont-Riding, de la Mauricie, Banff et des Lacs-Waterton), les populations restantes survivent difficilement.

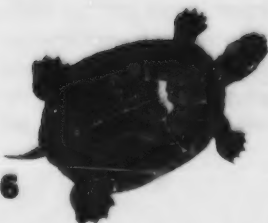
- **Pollution atmosphérique** – les polluants aéroportés, ceux qui par exemple sont à l'origine des précipitations acides, produisent des effets nocifs dans de nombreux parcs. Le Canada Atlantique et le Sud du Québec ont été baptisés le « tuyau d'échappement de l'Amérique du Nord » parce qu'il sont situés en aval des grandes régions urbaines et industrielles du continent. Après plus de deux décennies de recherches effectuées dans le parc national Kejimikujik, on a constaté que le faible pH des eaux de ce parc est associé à la baisse des succès de reproduction de l'omble de fontaine. Le parc des Îles-de-la-Baie-Georgienne et celui de la Mauricie demeurent exposés à un risque d'acidification qui surpasse la capacité du milieu à tamponner les sulfates et autres composés acides.

- **Pesticides** – les pesticides épanchés à l'extérieur des parcs sont détectés à l'intérieur de leurs limites. Mentionnons le toxaphène, utilisé en abondance (à l'extérieur des parcs nationaux) jusque vers la fin des années 1970. Ce pesticide peut nuire au fonctionnement du système endocrinien, endommager les poumons, le foie et les reins, et causer le cancer, des troubles du développement ainsi que des difficultés au niveau de l'appareil génital et du système immunitaire. Or, selon des recherches effectuées au parc national Banff, le toxaphène est présent dans le zooplancton du lac Bow; de plus, les

Ours noir heurté à mort dans le parc national du Mont-Riding



Routes fragmentant le paysage à proximité du parc national des Îles-de-la-Baie-Georgienne.





Grand héron

Disparition d'espèces dans le parc national de la Pointe-Pelée

L'évolution de la biodiversité du parc national de la Pointe-Pelée est un exemple des enjeux importants auxquels les parcs nationaux du Canada sont confrontés.

Depuis 1900, environ 20 espèces de reptiles et d'amphibiens ont disparu de ce parc de l'Ontario, l'un des plus petits au Canada. Différentes causes sont à l'origine de ce déclin surprenant, mais dans plusieurs cas, ces disparitions ne sont pas très bien comprises. Les facteurs de disparition d'espèces comprennent :

- la faible superficie et l'isolement – la superficie du parc ne suffit pas à soutenir des populations viables de certaines espèces. En effet, le parc de la Pointe-Pelée est isolé au milieu de terres intensivement cultivées, de routes et d'habitations. Il constitue le seul îlot de forêt carolinienne protégé à l'intérieur d'un parc national;

- les polluants – le DDT était utilisé en abondance dans les années 1960 pour lutter contre les moustiques; des niveaux résiduels élevés expliqueraient la disparition de certaines espèces. En outre, des programmes de surveillance des eaux souterraines et des réseaux d'égouts révèlent que des quantités excessives de composés d'azote et de phosphore ont été transportées par les eaux souterraines et ont pollué les marais du parc. Dans certaines zones, les quantités excessives d'éléments nutritifs pourraient provenir directement de chalets construits par le passé, du nombre élevé de visites et, par conséquent, de la forte densité d'installations d'élimination des eaux usées dans les eaux souterraines par le biais de systèmes septiques vétustes;

- la surutilisation – compte tenu des taux de fréquentation passés, c'est-à-dire plus de 750 000 personnes par année, et des taux actuels, soit plus de 400 000 personnes, l'activité humaine continue d'avoir des incidences importantes sur ce parc de faible superficie. L'aménagement d'un plus petit nombre de sentiers et la consolidation d'installations et de services ont permis d'améliorer la situation depuis quelques années – et de réduire volontairement le nombre de visiteurs – mais les incidences se poursuivent en raison de la clientèle nombreuse qui continue de fréquenter le parc.

Parmi les espèces disparues du parc de la Pointe-Pelée, mentionnons le ouaouaron, autrefois largement répandu. En effet, il y a quelques années à peine, les visiteurs qui déambulaient sur la promenade des marais pouvaient entendre les concerts tapageurs d'une multitude de ouaouarons, qui se sont tus depuis.

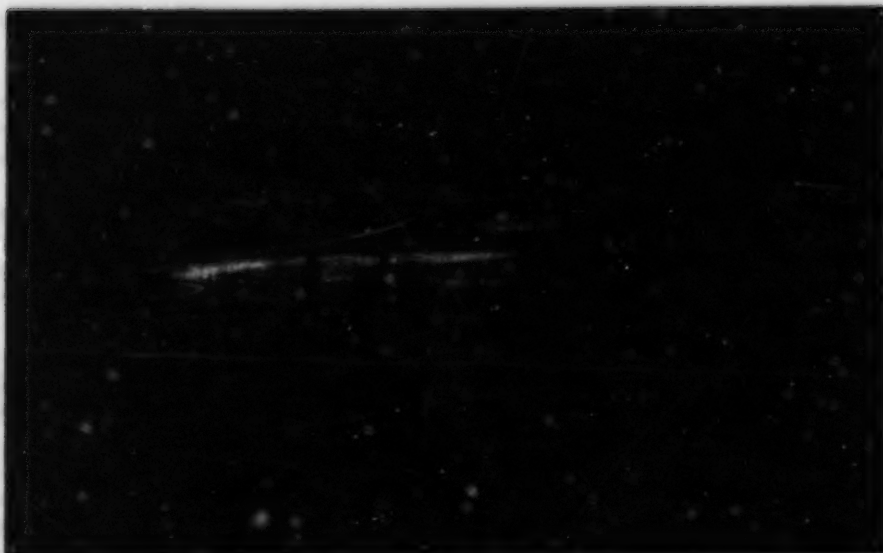
Nous ne pouvons régler tous les problèmes de la planète, mais nous pouvons certainement régler ceux que nous avons nous-mêmes créés et qui affectent directement les espèces protégées. Nous pouvons difficilement plaider la cause de changements environnementaux avant d'avoir réglé nos propres problèmes.

Nord. Les niveaux de mercure trouvés dans les huards du parc national Kejimikujik sont également élevés; une telle condition réduit les chances de succès de la nidification. Le DDT est un autre pesticide dont les niveaux sont considérables dans les sédiments lacustres et couleuvres fauves du parc national de la Pointe-Pelée. Une corrélation a été établie entre les niveaux élevés de DDT et la réduction des populations de grenouilles ainsi que la perte d'espèces dans plusieurs autres parcs et réserves fauniques le long de la rive nord du lac Érié.

- **Espèces exotiques** – les espèces exotiques envahissantes, qu'elles soient végétales ou animales, causent des problèmes dans les parcs partout au Canada. Par exemple, dans le parc national de la Pointe-Pelée, l'alliaire officinale envahit les forêts caroliniennes et prend le dessus sur les espèces indigènes. Dans le parc national du Mont-Riding, le grand nombre d'espèces végétales exotiques répandues dans les prairies de fétuque scabre est une source de préoccupation puisque ces espèces envahissantes gagnent du terrain sur les plantes indigènes. Enfin dans le parc national du Gros-Morne, l'original et le lièvre d'Amérique, introduits à Terre-Neuve il y a plusieurs décennies, modifient la dynamique des habitats et de la végétation à l'intérieur du parc.

- **Surutilisation** – les niveaux croissants d'activité humaine dans la plupart des parcs nationaux ont donné lieu à une fréquentation excessive, à une surutilisation des infrastructures (les stations de traitement des eaux usées par exemple), au sur-développement et à une myriade d'autres problèmes qui entraînent la détérioration de la qualité de l'air et de l'eau, l'érosion ainsi que la dégradation d'habitats fauniques. Autre exemple, dans chaque vallée du parc national des Lacs-Waterton, une route a été construite ou un sentier a été tracé – sinon les deux.

Plus de 14 millions de visites sont enregistrées annuellement dans les parcs nationaux. Seuls les parcs situés dans les zones les plus nordiques n'ont pas encore été soumis à une demande aussi élevée. Compte tenu d'un taux de croissance annuelle prévu d'environ 4,5 pour cent, ce chiffre doublera dans 15 ans seulement. Comment nos parcs pourront-ils supporter une telle fréquentation?



Il est peu probable que la biodiversité des aires protégées se maintiendra si elles sont entourées d'habitats dégradés qui limitent le flux génétique, modifient les cycles des éléments nutritifs et de l'eau, et produisent des changements climatiques régionaux et mondiaux qui pourraient entraîner la disparition de ces « parcs-îlots ». Les aires protégées doivent être intégrées aux processus régionaux d'aménagement du territoire.

Traduction d'un extrait de
Parks for Life: Report of the
IV World Congress on National
Parks and Protected Areas,
1992

Les parcs nationaux à l'heure des choix

Comment en sommes-nous arrivés là? Par définition, les parcs nationaux ne sont-ils pas des endroits protégés que nous croyons à l'abri des effets du développement et de la pollution? Afin que les parcs nationaux demeurent intacts, la notion de leur protection a été consacrée dans la Loi sur les parcs nationaux de 1930; le terme « intégrité écologique » a par la suite été cité dans la Politique de gestion de Parcs Canada en 1979 et dans la loi de 1988 modifiant la Loi sur les parcs nationaux.

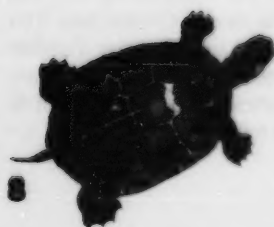
Il est vrai que l'intégrité écologique est l'élément fondamental du mandat de Parcs Canada, mais Parcs Canada ne peut s'acquitter de ce mandat s'il ne jouit pas de l'appui des Canadiens de tous les milieux. Bien que beaucoup de gens se soient portés à la défense des aires protégées (l'apport de plusieurs d'entre eux est reconnu dans la dédicace au début de ce rapport), les Canadiens, dans l'ensemble, n'ont pas entièrement compris les responsabilités individuelles et collectives qu'ils doivent assumer pour la protection des parcs.

Il est inutile de faire porter le blâme sur nos prédécesseurs. Cependant, les processus naturels et les écosystèmes étant mieux compris aujourd'hui, nous devons reconnaître que les activités passées sont à l'origine d'une grande

partie des tensions actuelles. Nous pouvons prendre appui sur ce nouveau degré de compréhension pour améliorer l'intégrité écologique de nos parcs nationaux et la préserver.

Des changements profonds sont nécessaires. L'avenir des parcs nationaux doit être envisagé non plus en fonction d'une lente régression de l'intégrité écologique, mais plutôt dans une perspective de restauration et de renouveau. Nous devons réapprendre à assumer nos responsabilités envers les parcs et les paysages qui les entourent. Nous devons également réapprendre à respecter la vie et la valeur intrinsèque des systèmes naturels.

Les problèmes qui menacent les parcs nationaux du Canada ne signifient pas qu'un « désastre » est imminent. Ils indiquent néanmoins la présence de stress, dont certains sont extrêmement intenses. Ces stress sont réels et graves, même s'ils ne sont pas nécessairement visibles ou immédiats. La nature est capable d'absorber bien des chocs, mais sa résilience n'est pas infinie. Sans une plus grande attention et la réorientation des priorités, nous perdrons l'occasion qui nous est donnée de restaurer l'intégrité écologique de nos parcs.



Des choix s'imposent pour nos parcs. Si nous persistons dans la voie suivie jusqu'à maintenant, nous risquons de perdre à tout jamais la possibilité de séjourner dans les milieux sauvages protégés qui nous sont si chers. Les Canadiens seront coupés de ce patrimoine unique qui

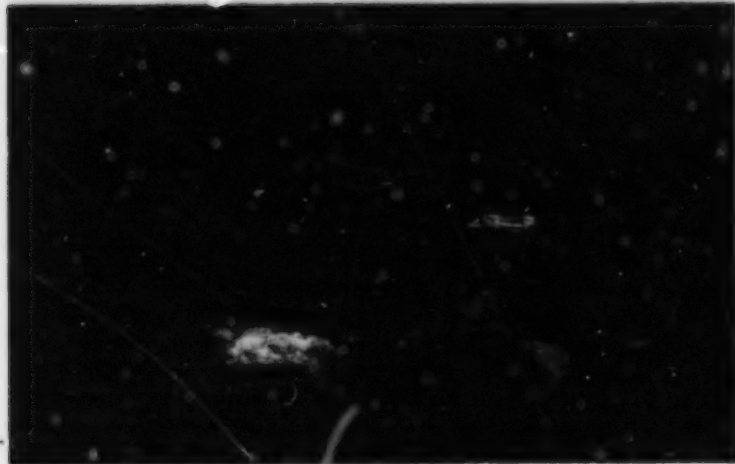
leur appartient, et les générations futures ne pourront jouir de parcs restés « intacts. » La protection de nos parcs nationaux est une tâche ardue que nous ne pouvons confier exclusivement à Parcs Canada. Tous les Canadiens doivent

participer à cette entreprise.

Le Canada est un pays riche. Notre énorme territoire est peuplé d'une faune abondante qui ferait l'envie de la plupart des pays. Nous sommes ingénieux, novateurs et fiers du caractère réfléchi et pondéré de nos processus décisionnels. Par-dessus tout, nous sommes très attachés à notre nature sauvage. Si le Canada ne peut réussir son développement en protégeant ses milieux sauvages sacrés, quel autre pays pourra le faire?

Chose certaine, il ne faut plus hésiter. Si nous continuons de ne pas tenir compte de l'intégrité écologique, elle disparaîtra purement et simplement.

Commentaire soumis à la Commission



Déversement d'hydrocarbure menaçant le parc national du Gros-Morne

Pourquoi avons-nous besoin de parcs nationaux?

Le Canada a choisi de préserver des portions de nature sauvage en créant des parcs nationaux. Les raisons pour lesquelles nous apprécions les parcs varient d'un individu à l'autre. Elles ont toutes en commun cependant le fait de s'inspirer

de la diversité de la vie ou des beautés naturelles et de l'importance culturelle des parcs. Ces caractéristiques distinguent ces territoires des terres environnantes. Pour plus de 70 pour cent des Canadiens, les parcs nationaux sont des symboles d'identité nationale. Si les parcs nationaux devaient se détériorer de telle sorte qu'on ne les distinguait plus des territoires aménagés qui les entourent, la valeur des parcs disparaîtrait aux yeux des Canadiens. Ces changements menaceraient l'esprit même de notre pays.

Malgré l'importance que nous attachons aux milieux sauvages, les parcs nationaux et les écosystèmes sont sous-évalués, ou plutôt, mal évalués dans notre économie de marché. Nous savons que nous avons besoin d'aires protégées et de milieux sauvages, mais ce besoin s'articule souvent avec difficulté. En fait, comme la valeur de nos parcs est littéralement « inestimable, » elle demeure inconnue.

Les parcs nationaux jouent des rôles multiples: ils protègent les processus écologiques et biologiques, contribuent à la préservation de la biodiversité, accueillent des centres de recherche et d'enseignement, procurent des retombées économiques et sont indispensables en termes de loisirs, de spiritualité, de culture, d'histoire et d'esthétique. Les parcs sont donc essentiels à plusieurs égards.

PROTECTION DES PROCESSUS ÉCOLOGIQUES

Les parcs et les aires protégées procurent aussi des avantages considérables aux collectivités qui demeurent à l'extérieur de ces territoires. La protection de bassins hydrographiques et l'absorption du dioxyde de carbone sont des exemples de processus écologiques ou de services assurés par les parcs nationaux. De plus, les parcs soutiennent des espèces végétales et animales en agissant comme refuges et pépinières pour la revitalisation des populations de ces espèces à l'extérieur des aires protégées.

Si nous conservons les systèmes qui soutiennent la vie – climat, qualité de l'air, qualité et quantité d'eau, cycle des éléments nutritifs, formation des sols, diversité biologique – nous assurerons à la longue la sécurité de notre propre avenir économique et social.

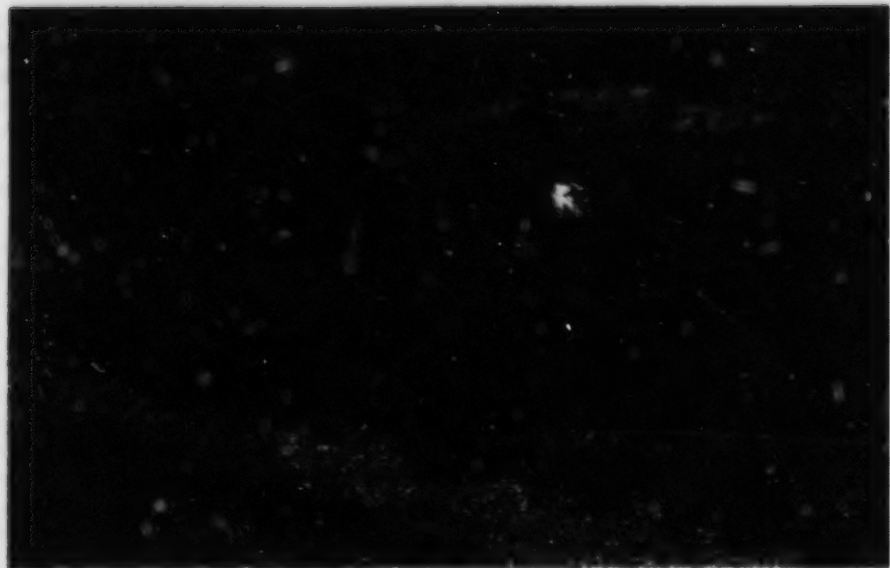


Caribou près d'une route principale dans le parc national du Gros-Morne

Les parcs nationaux en tant que témoins écologiques

Les parcs nationaux permettent d'évaluer le changement: c'est d'ailleurs leur rôle le plus important. Lorsque nous nous livrons à la coupe du bois, à la pêche ou à l'agriculture, nous devons pouvoir compter sur de tels repères pour assurer la durabilité de ces activités. Les milieux sauvages possèdent une valeur intrinsèque, mais leur rôle en tant que points de comparaison est encore plus important parce qu'il permet de comprendre comment ces activités se répercutent sur le reste du paysage. Les parcs nationaux sont à ce titre un élément vital d'une stratégie globale de durabilité.

Commentaire soumis à la Commission



PROTECTION DE LA BIODIVERSITÉ

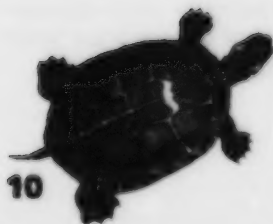
La préservation de la biodiversité a été reconnue comme étant une mission urgente pour l'humanité, tel que déclaré dans la Convention des Nations Unies sur la biodiversité, signée à Rio de Janeiro en 1992. Puisque le Canada a signé cette convention internationale, il lui incombe de protéger la biodiversité, les plantes et les animaux, ainsi que les habitats et processus qui les soutiennent. Malgré cet engagement, des espèces végétales et animales continuent de disparaître, pour toutes sortes de raisons allant de la perte d'habitats aux effets de la pollution.

Le Canada est bien placé pour renverser la vapeur, notamment en créant de nouveaux parcs et en assurant la viabilité des parcs actuels. En tant que noyaux d'un paysage à la fois protégé et manipulé, les parcs nationaux peuvent contribuer considérablement au maintien de la biodiversité dans les régions naturelles qu'ils représentent. Choyé par un vaste réseau de parcs nationaux et d'autres aires protégées, le Canada doit néanmoins prendre la responsabilité d'assurer la conservation de la biodiversité.

CENTRES DE RECHERCHE ET D'ENSEIGNEMENT

Du comportement des animaux sauvages aux processus naturels, en passant par les communautés végétales et les interactions écosystémiques, les parcs nationaux offrent des occasions exceptionnelles d'apprentissage sur le fonctionnement de la nature non influencée par l'activité humaine. En comprenant plus à fond les aspects scientifiques des processus naturels, nous sommes à même de mieux saisir les répercussions de l'activité humaine à l'extérieur des aires protégées et de déterminer des seuils d'acceptabilité pour le changement, c'est-à-dire le degré auquel nous sommes disposés à modifier un écosystème avant de réviser nos méthodes d'exploitation d'une ressource. Les parcs nationaux et les aires protégées sont des milieux hautement favorables à l'apprentissage de l'écologie. Nous avons déjà raté un certain nombre d'opportunités. Mentionnons à titre d'exemple les prairies d'herbes indigènes du Canada, presque complètement disparues avant que quiconque ne songe à les protéger et à les étudier; en conséquence, le parc national des Prairies se voit obligé de restaurer des communautés végétales sans disposer de connaissances approfondies à leur sujet.

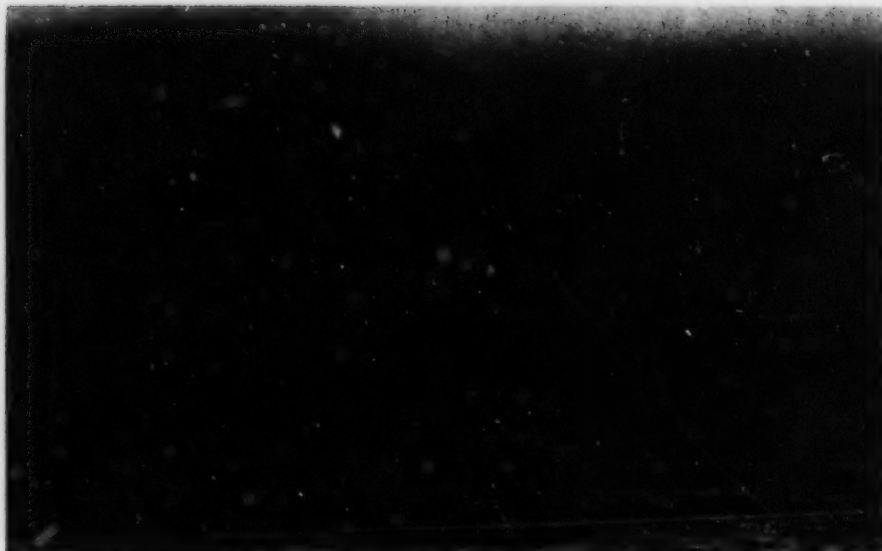
Grâce aux recherches et aux connaissances acquises dans les parcs nationaux, nous pouvons



Kayakistes pratiquant leur activité dans la réserve de parc national Gwaii Haanas/ site du patrimoine Haïda

La raison fondamentale pour laquelle nous devons préserver ce qui reste de nature sauvage sur terre et en mer est le symbolisme de l'acte en soi, la reconnaissance implicite de valeurs qui vont au-delà de notre humanité et qui ne devraient pas être détruites, une expression d'étonnement devant ce monde grandiose auquel nous devons la vie et que nous ne pourrions recréer s'il disparaît.

Stan Rowe, Home Place,
1990



contribuer à l'amélioration de la gestion et de la restauration des paysages aménagés ou dégradés situés à l'extérieur des parcs et aires protégées. Les parcs offrent aussi des possibilités éducatives, sous forme de recherches, de centres et programmes d'interprétation, de programmes de diffusion externe et de contacts directs avec les milieux sauvages.

LIEUX DIGNES D'APPRECIATION ET DE CÉLÉBRATION

Les milieux sauvages sont solidement ancrés dans la mentalité canadienne. Même si la majorité d'entre nous sommes des citadins, nous avons fait de la notion de nature sauvage (la « sauvagité ») un élément dominant de notre identité nationale, de notre unité nationale et de notre fierté nationale. Nous nous plaignons à l'idée que les milieux sauvages qui nous accueillent dès la sortie de nos villes et villages font du Canada un meilleur pays du simple fait qu'ils existent. Même nos pièces de monnaie sont frappées à l'effigie de paysages et d'animaux sauvages.

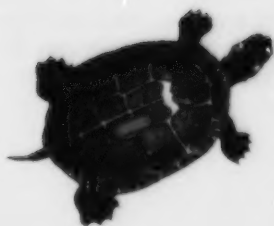
Nos parcs nationaux sont des paradis pour la pratique d'activités récréatives, où l'on peut s'arracher à l'environnement urbain pour se mesurer à la nature par des activités physiques ou, au plan plus émotif, profiter d'un temps d'arrêt. La notion d'utilisation et de jouissance par les humains est inhérente à celle des parcs nationaux.

La valeur émotive et spirituelle des parcs ne s'exprime pas en termes monétaires, mais plutôt en termes de liens affectifs, de satisfaction, de mise en contexte et de respect. Nos besoins spirituels et culturels, notre soif de connaissance de l'histoire et notre souci d'esthétisme sont satisfaits, en partie du moins, au contact de la nature sauvage. Nous recherchons ce contact afin de replacer nos vies et nos entreprises dans un contexte naturel global. Les milieux sauvages sont, en outre, une source d'inspiration musicale, artistique et littéraire. La spiritualité de ces endroits spéciaux satisfait les besoins de notre humanité depuis des milliers d'années.

Enfin, il nous arrive parfois d'avoir simplement besoin d'un lieu de paix et de tranquillité, où nous pouvons nous retirer en silence, admirer les étoiles et entendre autre chose que la cacophonie des bruits de tous les jours.

VALEURS ÉCONOMIQUES

Les parcs constituent une source de revenus pour les collectivités rurales, par le biais d'emplois dans les parcs mêmes ou, au plan régional, dans les nombreuses entreprises de tourisme, d'entretien ou d'aménagement d'infrastructures associées aux parcs; ils représentent un facteur de diversification de l'économie locale. De plus, les parcs attirent des visiteurs de partout au Canada et de nombreux pays du monde. Ces visiteurs contribuent de façon croissante à l'économie canadienne. En agissant comme





Surveillance des mouvements
de populations de loup au
Parc national de la Mauricie.

aires de dissémination, les parcs soutiennent également les espèces du paysage environnant et créent par le fait même une valeur économique pour l'avenir, aux fins de subsistance ou de récolte commerciale de tout un éventail de produits.

La création d'emplois est loin d'être la seule retombée économique des parcs. Selon des études effectuées en Ontario, les Canadiens qui visitent les parcs en tirent des avantages considérables sur le plan du bien-être physique, ce qui contribue à réduire le coût des soins de santé. De plus, un grand nombre de cours d'eau prennent naissance dans les parcs nationaux; la valeur économique d'abondantes réserves d'eau de qualité est incommensurable.

VALEUR INTRINSÈQUE DE LA NATURE

Tous les points soulevés jusqu'ici au sujet de la valeur des parcs nationaux ont en commun la perspective suivante: il s'agit de valeurs attribuées par la société. Selon cette perspective, les parcs n'ont une valeur que si l'on peut en tirer des avantages, même intangibles. Plusieurs cultures occidentales ont divisé le monde en éléments humains et non humains; elles ont supposé que tout ce qui n'est pas humain doit servir l'humanité et n'est qu'objet d'exploitation et de gain.

Or la nature possède une valeur intrinsèque. Toutes les espèces et tous les écosystèmes naturels méritent d'être respectés pour ce qu'ils sont et non seulement pour leur utilité ou leur capacité de satisfaire aux besoins de la société.

Afin d'assurer la survie de la faune et de la nature, si chères aux Canadiens, nous devons exiger que les institutions dont les actes ont la capacité d'agir sur la nature fassent preuve d'un respect fondamental à l'endroit de cette dernière et de ses processus, ainsi que d'un engagement véritable pour la coexistence de toutes les espèces et de tous les êtres vivants.



Employés de Parcs Canada discutant avec des membres de la Commission dans le parc national du Mont-Riding.



Le temps d'agir Parcs Canada

Insistons pour que l'humanité et la nature aient le droit de coexister dans des conditions saines, favorables, diversifiées et durables.

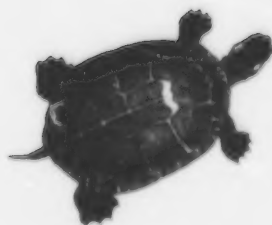
Nilsen, 1993

Il est inutile de s'apitoyer sur le passé; nous devons nous tourner résolument et lucidement vers l'avenir. Une occasion remarquable s'offre à nous. Les Canadiens peuvent contribuer à la réputation du Canada, pays respecté dans le monde entier, en faisant preuve de leadership pour la préservation de nos parcs nationaux en tant que patrimoine canadien et mondial, et en tant que lieux spéciaux qui méritent d'être protégés pour leur valeur intrinsèque. Ensemble, nous devons prendre nos responsabilités, modifier nos façons de faire et aller de l'avant.

La Loi sur les parcs nationaux et les Principes directeurs et politiques de gestion de Parcs Canada énoncent clairement le concept de veiller à ce que les parcs nationaux demeurent intacts, plus précisément de protéger leur intégrité écologique. Une responsabilité particulière incombe à Parcs Canada en vue de ce changement, parce que le soin des parcs nationaux lui a été confié. L'heure est venue pour Parcs Canada d'assumer pleinement son rôle de protection de nos parcs nationaux et d'agir en conséquence.

Il s'agit d'une opportunité unique pour Parcs Canada de replacer l'intégrité écologique au premier rang de ses objectifs, et ce, dans tous les aspects de sa gestion. Cette évolution nécessitera la participation non pas d'une seule personne ou d'un seul palier de l'organisation, mais celle de l'ensemble des employés. La Commission est d'avis que Parcs Canada peut s'appuyer sur l'engagement personnel du grand nombre de ses employés. Parcs Canada doit compter sur ses 3000 employés qui défendent l'idéal des parcs et obtenir aussi le soutien des 30 millions de Canadiens.

Dans le deuxième volume de ce rapport, la Commission formule de nombreuses recommandations d'ordre stratégique et opérationnel à l'intention de la ministre et de Parcs Canada, en faveur d'une nouvelle orientation axée sur la restauration de l'intégrité écologique de nos parcs nationaux. Ces recommandations sont réparties en plusieurs catégories:



À la défense de la conservation

Que Parcs Canada joue un rôle de gestion passif ne suffit pas. Nos parcs nationaux ont absolument besoin d'une organisation déterminée de défendre avec énergie et rigueur les valeurs du patrimoine canadien.

Commentaire soumis à la Commission

- veiller à ce que la protection de l'intégrité écologique soit au premier rang des priorités quant à tous les aspects de la gestion des parcs nationaux;
- réorienter la démarche de Parcs Canada afin que l'Agence:
 - favorise une culture d'apprentissage qui valorise l'acquisition et l'utilisation de connaissances au plan des sciences naturelles et sociales comme moyen de comprendre et de maintenir les processus écologiques;
 - transmette ces connaissances à tous les Canadiens pour leur utilité et leur bénéfice;
- redonner un rôle aux peuples autochtones au sein des parcs nationaux du Canada;
- promouvoir la protection des écosystèmes qui entourent les parcs nationaux, en établissant des partenariats stratégiques avec les autres paliers de gouvernement, les organisations non gouvernementales, les collectivités, les industries et les propriétaires fonciers; il sera ainsi possible d'établir des principes de gestion plus durable des paysages environnants, y compris un réseau national d'aires protégées dont le niveau de protection varierait d'une aire à l'autre;
- communiquer à tous les Canadiens la valeur des parcs nationaux et leur faire connaître les mesures que la population peut prendre pour contribuer à la protection de ces lieux spéciaux.

Voici, en résumé, les éléments les plus importants que Parcs Canada doit entreprendre pour assurer la protection de l'intégrité écologique:

FAIRE DE L'INTÉGRITÉ ÉCOLOGIQUE SA TOUTE PREMIÈRE PRIORITÉ

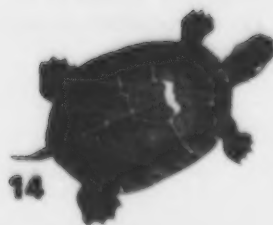
L'intégrité écologique doit devenir le filtre à travers lequel passe toutes les actions et décisions ayant un effet sur les parcs nationaux. Le caractère prioritaire de la protection de l'intégrité écologique est clairement énoncé dans la Loi sur les parcs nationaux, la Loi sur l'Agence Parcs Canada et les Principes directeurs et politiques de gestion de Parcs Canada. Dans la réalité de tous les jours cependant, la primauté de l'intégrité écologique pour la réalisation du mandat n'est pas généralement comprise ni observée. De fait, par le passé, cette primauté

n'a pas orienté les processus décisionnels de Parcs Canada, ce qui s'est traduit par l'érosion de l'intégrité écologique dans les parcs nationaux. Dorénavant, Parcs Canada doit défendre sans équivoque l'intégrité écologique dans tous ses actes et décisions, et assurer que la protection de l'intégrité écologique constitue le point focal de tous les membres du personnel.

CRÉER UNE CAPACITÉ D'ACQUISITION DE CONNAISSANCES

La protection de l'intégrité écologique dans les parcs nationaux a souvent échoué en raison du manque de données et d'information, du manque de capacité en sciences naturelles et sociales, et du manque de rigueur scientifique dans les activités de gestion des parcs. Parcs Canada doit apprendre en agissant, c'est-à-dire se doter, sur le plan des sciences naturelles et sociales, d'une plus grande capacité de gestion adaptative. Parcs Canada doit reconnaître que des incertitudes existent, ne pas perdre tous ses moyens pour autant, puis aller de l'avant en recueillant des données, en se dotant de la capacité nécessaire pour comprendre ces données et en créant des mécanismes de mesure, d'évaluation et d'apprentissage.

D'autre part, les connaissances sont le fondement de solides programmes et messages d'enseignement, d'interprétation et de diffusion externe. Parcs Canada peut jouer un rôle clé dans l'éducation des Canadiens au sujet de l'intégrité écologique et de l'utilisation durable des ressources naturelles. La formation de partenariats avec les universités, les industries, les gouvernements provinciaux et territoriaux, de même qu'avec les Autochtones, favorisera l'acquisition de connaissances au sein de Parcs Canada et lui confèrera un mécanisme de partage de ses connaissances écologiques.



Visiteurs menaçant par inadvertance les espèces de la zone intertidale dans la réserve de parc national Gwaii Haanas/site du patrimoine Haïda.



GÉRER ACTIVEMENT EN FONCTION DE LA CONSERVATION

Compte tenu de l'influence considérable des êtres humains sur les parcs nationaux, Parcs Canada doit intensifier les mesures de gestion active de ces territoires afin de maintenir les composantes et procédés écologiques, et les restaurer au besoin. Les initiatives de gestion active doivent faire l'objet de recherches, d'appuis et de surveillance pour que leur efficacité soit assurée.

FORMER DE VÉRITABLES PARTENARIATS AVEC LES AUTOCHTONES

Plus de la moitié des terres maintenant protégées par les parcs nationaux du Canada ont été réservées avec la participation directe des peuples autochtones. Parcs Canada et les Canadiens en général ne font que commencer à reconnaître le rôle des Autochtones dans tous les parcs nationaux.

Grâce aux expériences de réconciliation ainsi qu'au rétablissement du respect et des liens de collaboration, Parcs Canada et ses partenaires autochtones pourront s'éloigner des attitudes et activités fondées sur la revendication des droits, et adopter des attitudes et des actes

qui privilégient le sens des responsabilités. Un tel exemple ne peut qu'inspirer l'ensemble des Canadiens à effectuer un virage semblable. À mesure que s'accroît le respect des Canadiens envers les Autochtones, nous comprenons davantage l'éthique et les activités traditionnelles de ces peuples dans les parcs nationaux. La création de véritables partenariats entre Parcs Canada et les peuples autochtones permettra d'assurer la protection de ces lieux sacrés et servira d'exemple à suivre pour les autres Canadiens.

DÉFENDRE LA CRÉATION D'UN RÉSEAU D'AIRES PROTÉGÉES

Ce n'est qu'en gérant les terres de manière durable, ainsi que l'air, l'eau, les sols et les processus qui les lient les uns aux autres, que nous pourrions protéger les espèces animales et végétales.

Les parcs nationaux ne peuvent assurer à eux seuls la biodiversité ou l'intégrité écologique du Canada. Pour remplir leur mandat, les parcs nationaux doivent s'intégrer dans un paysage géré de manière durable et comprenant un réseau complet d'aires protégées. Afin de créer un tel paysage, le personnel des parcs nationaux

Contrairement à d'autres aspects des programmes de l'Agence, le financement insuffisant des programmes à vocation écologique ne produit pas des répercussions immédiates, ce qui en fait des cibles faciles quand vient l'heure de compresser ou de reporter des investissements.

Commentaire du Centre de services de Parcs Canada, Ontario



doit être autorisé, et incité, à défendre les intérêts et les valeurs des parcs nationaux, en formant des partenariats et des réseaux

d'entente de façon à ce que, à l'instar des écosystèmes naturels, l'ensemble soit plus important que la totalité de ses parties. Reconnaître le besoin de conserver les écosystèmes qui englobent les parcs suppose l'obligation de rendre compte, de communiquer, de négocier et de se respecter mutuellement, tant au sein de Parcs Canada qu'entre celle-ci et les autorités ayant compétence sur les territoires adjacents, notamment les gouvernements provinciaux et territoriaux.

Notre réseau d'aires protégées doit être littéralement « plus grand que nature. »

UTILISER SANS ABUSER

Les parcs nationaux doivent offrir aux visiteurs des expériences enrichissantes et responsabilisantes sans compromettre l'intégrité écologique. Les activités et installations appropriées sont les bienvenues dans les parcs nationaux, mais, défi peut-être plus diffi-

cile à relever, Parcs Canada doit prendre les décisions qui s'imposent lorsqu'il s'agit d'éliminer progressivement, de réduire ou d'atténuer les

activités et installations qui ne conviennent pas. La fréquentation des parcs nationaux doit être fondée sur le principe du séjour responsable: utiliser sans abuser.

OBTENIR L'APPUI DU PUBLIC EN

FAVEUR DE L'INTÉGRITÉ ÉCOLOGIQUE

L'appui généralisé du public en faveur de l'objectif de Parcs Canada de protéger l'intégrité écologique dans les parcs nationaux revêt une importance cruciale pour la réalisation du mandat de l'Agence et la poursuite à long terme de cette protection. Les programmes de diffusion dans les régions urbaines (y compris la présence de Parcs Canada dans les parcs urbains, comme celui de la Rouge à Toronto) et les autres moyens de communication, tel qu'Internet, sont d'importance critique pour faire comprendre et accepter les buts de Parcs Canada par les Canadiens. Parmi les outils qui permettent de relier efficacement les citoyens à la nature, mentionnons les programmes de diffusion externe centrés sur la sensibilisation à l'environnement et aux choix écologiquement durables; ils montrent comment ces choix soutiennent l'intégrité écologique non seulement dans les parcs nationaux, mais aussi dans l'ensemble du Canada.

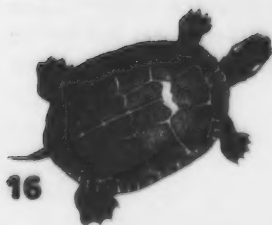
Le maintien et la restauration de l'intégrité écologique sont possibles uniquement dans la mesure où le personnel des parcs, les visiteurs, les gestionnaires des territoires voisins et les Canadiens en général comprennent et apprécient la protection et les pratiques durables, et prennent les mesures nécessaires pour les assurer. L'interprétation est donc au cœur de l'élaboration des valeurs fondamentales des parcs nationaux; elle joue un rôle très important dans les communications sur l'intégrité écologique. À cette fin, l'interprétation et la diffusion externe doivent devenir des activités fondamentales de Parcs Canada; elles doivent relever d'un personnel professionnel et être soutenues de façon à ce que ce mandat soit rempli dans les parcs et auprès du public.

Les Watchmen Haida Gwaii

En 1981, le conseil de la bande de Skidegate et la nation Haida dépêchaient des bénévoles à plusieurs emplacements pour surveiller le patrimoine naturel et culturel qui faisait alors l'objet d'un intérêt grandissant de la part d'un nombre croissant de visiteurs. Ces bénévoles, les « Watchmen », profitaient de l'occasion pour sensibiliser les visiteurs à la culture Haida, sous forme de chants, de récits, de danses et d'information générale.

Ces emplacements ont été déclarés site du patrimoine Haida en 1985 et réserve de parc national en 1988. Une convention sans précédent avec les Gwaii Haanas, approuvée en 1993, a permis d'établir les modalités de gestion conjointe du site entre la nation Haida et le gouvernement fédéral par l'entremise de Parcs Canada. Le programme des Watchmen Haida Gwaii s'est poursuivi grâce à une source de financement obtenue par voie de contrat avec Parcs Canada. Les Watchmen et Parcs Canada ont travaillé main dans la main pour créer un plan de formation et de mise en valeur qui est en voie d'application. Les employés de Parcs Canada à Gwaii Haanas collaborent de près avec les Watchmen et appuient les aspects spirituels et éducatifs du programme.

Une des premiers membres
du groupe Watchmen Haida
Gwaii



Terre agricole en bordure du
parc national du Mont-Riding

Leadership au sein de l'industrie

Les parcs doivent devenir des centres d'apprentissage et d'étude des processus écologiques afin que les intervenants désireux de gérer les territoires voisins adoptent les meilleures pratiques écologiques possibles. Les parcs doivent mettre sur pied des groupes de recherche, dans le cadre de partenariats avec les universités et l'industrie, pour acquérir le bagage de connaissances nécessaires.

Commentaire soumis à la
Commission par une associa-
tion industrielle



PRÉVOIR DES RESSOURCES POUR ASSURER L'INTÉGRITÉ ÉCOLOGIQUE

La mise en œuvre réussie des différents programmes, initiatives et recommandations décrits dans le deuxième volume du rapport de la Commission exigera un appui ferme à long terme de la part du gouvernement fédéral sur le plan des finances et des ressources.

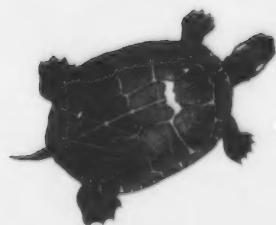
Parcs Canada doit appuyer le dévouement de son personnel en affectant les ressources financières et humaines nécessaires à l'avancement de la cause de l'intégrité écologique. Assurer le perfectionnement et le maintien d'une main-d'œuvre compétente et consciente de la nécessité de se ressourcer en permanence nécessitera des améliorations et des investissements, afin d'être en mesure de mieux s'acquitter de sa tâche.



Mine de charbon à ciel ouvert, immédiatement
à l'est du parc national Jasper



Coupe de bois à proximité de la réserve de parc
national Pacific Rim



Le temps d'agir: la population canadienne



Parc national de la Mauricie

Que peut faire la population canadienne?

Chacun de nous doit veiller à ce que nos parcs nationaux continuent d'occuper une place de choix dans la nature et dans nos cœurs. En travaillant collectivement à la viabilité de nos parcs nationaux, nous pouvons aider nos gouvernements à préserver l'accessibilité des milieux naturels, caractéristique distinctive et intrinsèque de notre identité nationale. Cette mission peut faire en sorte que les merveilles naturelles des différentes régions du Canada puissent être partagées, explorées, aimées et célébrées par tous les Canadiens.

La Commission suggère les mesures suivantes:

LES INDIVIDUS

Plus les Canadiens prendront connaissance des stress qui menacent nos parcs, plus ils appuieront la conservation de l'intégrité écologique. Les parcs nationaux ont besoin de défenseurs de l'environnement, des individus capables de faire des choix éclairés au sujet de l'utilisation des parcs. La Commission incite fortement les Canadiens à s'informer sur les parcs nationaux et sur les moyens à prendre pour appuyer l'intégrité écologique. Utilisons les parcs avec respect et de manière responsable.

LES GOUVERNEMENTS

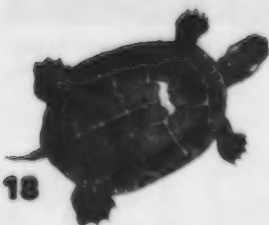
Environ 95 pour cent du territoire canadien est constitué de terres publiques sous juridiction des gouvernements provinciaux, territoriaux et fédéral. La collaboration intergouvernementale est essentielle à la création d'un paysage durable qui englobe une mosaïque d'aires protégées. Influencer les décisions et entreprendre des initiatives ou des aménagements durables font partie d'un nouveau rôle que tous les gouvernements peuvent et doivent assumer afin que les Canadiens continuent d'avoir accès aux expériences de séjour dans la nature.

LES PEUPLES AUTOCHTONES

Les gouvernements des Premières Nations assument un rôle de plus en plus important dans la mise en valeur d'un paysage durable qui intègre un réseau complet d'aires protégées. La formation de partenariats avec les gouvernements des Premières Nations et les Autochtones, à titre personnel ou collectif, est un critère fondamental de la protection à long terme des parcs nationaux, notamment dans le Nord du Canada, et dans les régions où des ententes sur des revendications territoriales globales ont permis aux peuples autochtones de reprendre la place qui leur revient dans les parcs nationaux. Parcs Canada et plusieurs Premières Nations ont déjà mis sur pied des partenariats novateurs faisant appel à la gestion coopérative d'aires protégées.

LES COLLECTIVITÉS

Les agglomérations urbaines et les infrastructures qui en découlent, tant à l'intérieur des parcs nationaux que dans les régions attenantes, sont des sources de stress pour les parcs nationaux en raison de la fragmentation ou de la perte d'habitats, ou des incidences sur la qualité de l'air et de l'eau. Les initiatives communautaires visant à éliminer ou à éviter ces stress peuvent améliorer énormément l'intégrité écologique des parcs nationaux.



LES ORGANISATIONS NON GOUVERNEMENTALES

Des organisations nationales, régionales, provinciales et locales se sont déjà mises à la tâche pour promouvoir des partenariats et des accords entre les intervenants clés en vue de la création d'un réseau d'aires protégées. Les organisations non gouvernementales du secteur environnemental jouent un rôle très important dans les initiatives d'aménagement du territoire.

LES PROPRIÉTAIRES FONCIERS

L'intendance des terres par les propriétaires fonciers peut contribuer énormément à la mise en valeur d'un paysage durable et d'un réseau d'aires protégées. Les propriétaires qui optent pour des modes de vie et de gestion durables, et protègent leurs terres par des moyens comme les servitudes de conservation peuvent contribuer énormément, et directement, à la qualité des zones protégées.

LE MONDE DES AFFAIRES

La mise en valeur d'un paysage durable dépend de la collaboration et de l'appui de nombreuses entreprises et industries qui procurent des emplois aux Canadiens et leur fournissent des matières et des produits. Le secteur industriel peut contribuer beaucoup au développement durable et à la prise de décisions sur la gestion des terres à l'extérieur des parcs. Le potentiel de partenariats novateurs entre Parcs Canada et différentes industries, telles que la foresterie, l'agriculture et l'extraction de ressources, est absolument formidable.

La voie à suivre

Parcs Canada peut miser sur sa culture d'apprentissage et de promotion des valeurs de conservation pour favoriser la compréhension de ces valeurs par tous les Canadiens. Les aires protégées nous tiennent à cœur; nous devons comprendre qu'elles sont à la fois limitées et menacées. La seule façon de protéger la nature sauvage à long terme est de prendre des mesures durables tant à l'intérieur qu'à l'extérieur des parcs nationaux. La création de partenariats visant à protéger l'intégrité écologique permettra aux parcs nationaux de montrer aux Canadiens combien il importe de penser en fonction de réseaux de collaboration.

La Commission sur l'intégrité écologique croit que les Canadiens veulent traiter toutes les terres de manière respectueuse, en assumant leurs responsabilités, de façon à protéger nos lieux les plus sacrés afin qu'ils restent « *intacts pour le plaisir des générations futures.* » Il appartient aux Canadiens et à nos gouvernements de prendre un engagement clair et prévoyant en faveur des valeurs véhiculées par les parcs nationaux et les aires protégées. Sans un tel engagement à long terme, la gestion judicieuse de nos parcs n'atteindra pas l'objectif de protection de l'intégrité écologique. Le gouvernement fédéral doit faire preuve de leadership à cet égard et suivre la voie tracée par les visionnaires auxquels ce rapport est dédié.

Il est essentiel que les êtres humains aient le loisir d'entrer en contact avec les milieux sauvages. Ces derniers nous proposent un défi, modifient nos perspectives et nous aident à concrétiser notre sentiment d'appartenance au monde qui nous entoure. Les milieux sauvages exercent un puissant effet de transformation sur notre vie.

La Commission recommande avec insistance que les individus, les grandes sociétés, les collectivités, les organisations et les gouvernements assument la responsabilité qui leur revient quant à la protection des lieux sauvages du Canada. En protégeant nos parcs nationaux, nous faisons notre part pour protéger les milieux naturels du monde entier – en fait, nous protégeons l'intégrité écologique à l'aide des parcs nationaux.

Nous vivons au sein d'un véritable entrelacement d'écosystèmes. Puisque la plupart d'entre nous sommes des citoyens, nos rapports avec la nature sont à tout le moins ténus et notre compréhension de la remarquable interconnectivité de ses éléments est des plus élémentaires. Mais il est possible de redresser la tendance si nous prêtons l'oreille aux signaux d'alarme lancés par nos parcs nationaux en péril. Nous pouvons prendre appui sur nos succès, nos partenariats et les initiatives déjà prises. Ensemble, nous pouvons renouveler nos liens avec les milieux naturels et, par le fait même, collaborer à la protection de nos lieux sacrés, de notre identité nationale et de notre rang dans la collectivité mondiale.

Il est temps d'agir!



La Commission sur l'intégrité écologique des parcs nationaux du Canada, dans un esprit de respect, de collaboration et d'amitié, lance à Parcs Canada les défis suivants :

- Concrétiser, dans son esprit et dans sa lettre la notion d'intégrité écologique dans les parcs nationaux du Canada.
- Créer un esprit d'apprentissage et de formation pour tous les membres de la grande famille de Parcs Canada, afin que chacun comprenne et reconnaisse la responsabilité qui vous incombe en matière d'intégrité écologique.
- Examiner vos méthodes de travail et rechercher de nouveaux moyens vous permettant d'assumer votre responsabilité à l'égard de l'intégrité écologique.
- Créer de nouveaux outils visant à protéger l'intégrité écologique, en explorant les secrets de la nature, et ce dans un esprit de recherche continue.
- Intégrer les peuples autochtones dans la famille de Parcs Canada en les considérant comme des amis avertis et dignes de confiance, dans un esprit de préservation de l'intégrité écologique.
- Sensibiliser vos voisins à la responsabilité qui vous incombe eu égard à l'intégrité écologique des parcs nationaux.
- Donner corps au concept de l'intégrité écologique en regroupant les lieux naturels isolés en une mosaïque de territoires à l'intérieur desquels l'intégrité écologique est protégée.
- Favoriser le partage et la transmission des connaissances, des valeurs spirituelles et des traditions liées à la terre afin de rehausser l'esprit de l'intégrité écologique.
- Offrir des activités respectueuses de l'intégrité écologique, tout en évitant l'offre d'activités incompatibles.
- En toutes circonstances, traiter la nature avec précaution.
- Mobiliser les capitaux nécessaires au renforcement du concept de l'intégrité écologique, sans lesquels vos obligations à l'égard de la nature ne peuvent être acquittées.

Les membres de la Commission sur l'intégrité écologique s'offrent à collaborer avec vous pour relever ces défis.

Points saillants

Les points suivants sont extraits des recommandations formulées dans le volume II du rapport de la Commission. Le numéro de référence de la recommandation figure entre parenthèses.

La Commission sur l'intégrité écologique des parcs nationaux du Canada recommande que :

Parcs Canada se transforme au moyen de nouvelles structures de formation, de dotation, de prises de décisions et d'imputabilité, confirmant ainsi que l'intégrité écologique est prioritaire au sein des parcs nationaux du Canada et que la responsabilité à son égard incombe expressément à chaque membre du personnel. (2-1, 2-4)

Parcs Canada revoit et simplifie son processus de planification pour y placer l'intégrité écologique au cœur des plans stratégiques et opérationnels. (3-3)

La ministre mandate Parcs Canada de prendre immédiatement les mesures législatives qui s'imposent pour convertir les aires sauvages des parcs nationaux en des zones de milieu sauvage officielles, tel qu'autorisé par la Loi sur les parcs nationaux. (3-11)



Parcs Canada augmente considérablement sa capacité en matière de sciences naturelles et sociales, de planification et d'interprétation afin de pouvoir gérer les parcs nationaux en fonction de l'intégrité écologique et éduquer la société à ce sujet; établit des partenariats avec le milieu universitaire, les industries, les peuples autochtones et autres institutions de savoir. (4-1, 4-3, 4-4, 4-6)

Parcs Canada prend des mesures de gestion active lorsqu'il y a des raisons valables de croire que le maintien ou la restauration de l'intégrité écologique seront compromis faute de ces mesures. Des mesures clés sont requises dans les domaines de la restauration de sites, du brûlage dirigé, de la gestion des espèces et des activités prélèvement. (5-1, 5-2, 5-3, 5-4, 5-8)

Parcs Canada prend l'initiative d'une démarche de réconciliation entre les peuples autochtones et Parcs Canada; adopte des politiques explicites pour encourager et appuyer la création de partenariats sincères avec les peuples autochtones du Canada. (7-1, 7-2)

Parcs Canada crée des partenariats qui favorisent la conservation des parcs en tant qu'éléments appartenant à des écosystèmes régionaux plus vastes; recherche la collaboration des provinces et des territoires en vue de l'établissement d'un réseau global d'aires protégées; participe avec les autres gouvernements, les industries et le public à la recherche de solutions visant le maintien de l'intégrité écologique; appuie ces solutions; prévoit un fonds consacré aux initiatives de conservation des écosystèmes qui englobent les parcs; défend les valeurs et les intérêts des parcs à l'intérieur d'écosystèmes plus vastes. (8-1, 9-1, 9-3, 9-6, 2-9)

Parcs Canada élabore une stratégie d'interprétation transmettant des messages explicites et cohérents concernant l'intégrité écologique. (10-1)

Parcs Canada cesse le marketing des parcs comme produit de consommation pour se concentrer plutôt sur un marketing approprié aux valeurs des parcs ainsi qu'à un marketing inverse lorsque nécessaire. (10-7)

Parcs Canada élabore une politique et met en œuvre un programme pour l'évaluation des activités admissibles et appropriées dans les parcs nationaux, le maintien de l'intégrité écologique étant le facteur déterminant. (11-1)

Parcs Canada réduit l'incidence de l'emprise humaine dans les parcs nationaux afin que les parcs deviennent des modèles et des lieux privilégiés pour la conception des infrastructures de services et la gestion environnementale. (12-4)

Parcs Canada, après avoir franchi les premières étapes en vue d'améliorer le cadre général de gestion en fonction de l'intégrité écologique dans les parcs nationaux, affecte de nouvelles ressources financières considérables pour mettre en œuvre les recommandations de la Commission visant l'amélioration de la capacité en matière de sciences et de planification, de la gestion active, de la surveillance écologique, des partenariats avec les peuples autochtones, de l'intendance écologique des grands écosystèmes et de l'interprétation; finance l'établissement et les opérations de nouveaux parcs, à même de nouveaux moyens financiers; favorise les décisions de gestion qui appuient l'intégrité écologique sans égard à la production de recettes. (13-1, 13-2, 13-4, 13-9)



La Commission sur l'intégrité écologique des parcs nationaux du Canada:

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Conserving Ecological Integrity with
Canada's National Parks

"Unimpaired for Future Generations"?

Volume II
Setting a
New Direction
for Canada's
National Parks

Canada

Errata

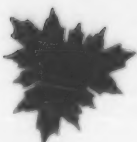
Figure 13-2. Parks Canada Agency Expenditures by Category 1998-1999

(\$ thousands)	Operations	Capital	TOTAL
Stewardship of National Places			
• Establishment of New Heritage Places	5,480.1	3,292.9	8,773.0
• Protection of Heritage Resources	57,398.2	21,931.6	79,329.8
- Ecosystem research & monitoring	5,878.1	4,657.5	10,535.6
- Ecosystem management	32,709.9	6,135.8	38,845.7
- Cultural resource research	3,949.4	4,208.9	8,158.3
- Cultural resource management	14,860.8	6,929.4	21,790.2
• Presentation of Heritage Resources	21,281.7	12,982.6	34,263.9
Total, Stewardship	84,260.0	38,206.7	122,366.7
Use and Enjoyment by Canadians			
• Visitor Services	57,422.3	19,926.8	77,349.1
• Townsites	3,700.3	858.9	4,559.2
• Through Highways	9,031.8	8,044.5	17,076.3
Total, Use and Enjoyment	70,154.5	28,830.2	98,984.7
Corporate Services			
• Management of Parks Canada	91,068.9	39,011.6	130,080.5
• People Management	13,371.5	180.2	13,551.7
Total, Corporate	104,440.4	39,191.8	143,632.2
TOTAL, PARKS CANADA	258,754.9	106,228.7	364,983.6

Source: Best available information provided to the Panel by Parks Canada as of November 15, 1999

français au verso

Panel on
the Ecological
Integrity of Canada's
National Parks



Commission sur
l'intégrité écologique
des parcs nationaux
du Canada

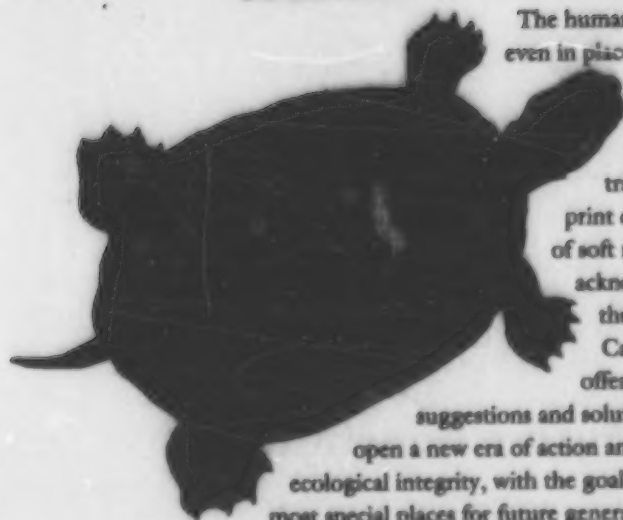
"Unimpaired for Future Generations"?

Conserving Ecological Integrity
with Canada's National Parks

**Volume II: Setting a New Direction
for Canada's National Parks**

Canada

On the cover



The human footprint is inescapable, even in places Canadians call "wilderness." This photo by Panel Vice-Chair Pamela Wright graphically illustrates that point — a footprint deeply sunk into a bed of soft moss. The Panel's report acknowledges the significance of the ecological footprint in Canada's national parks, but offers many recommendations, suggestions and solutions to help Parks Canada open a new era of action and responsibility for ecological integrity, with the goal of preserving Canada's most special places for future generations.

The Turtle Image: Many Aboriginal peoples believe that long life endows the turtle with great knowledge and wisdom. According to Haudenosaunee culture, the Sky Woman created the world on the back of a turtle. North America is known as Great Turtle Island to many Aboriginal peoples. The Turtle image appears throughout this report as a symbol of wisdom, respect, and traditional connections to the land.

Citation information

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SECTION A: A PANEL EXAMINES THE ISSUES

CHAPTER 1: A Sacred Trust

Protecting Ecological Integrity: A Vital Mission	1-2
A Vision for Canada's National Parks	1-7
Ecological Integrity: Issues and Fundamental Concepts	1-8
Key Findings of the Panel on Ecological Integrity	1-9
Fundamental Tools	1-17
Protecting Ecological Integrity <i>With</i> National Parks	1-19

SECTION B: PARKS CANADA AS AN ORGANIZATION

CHAPTER 2: Toward a Culture of Conservation

Toward a Knowledge-based Organization	2-2
Aligning Parks Canada with its Mandate	2-4
Structure, Staffing and Decision-making	2-9
Accountability	2-13
Politics and Parks Canada	2-15
Internal Debate and External Advocacy	2-16

SECTION C: A LEARNING ORGANIZATION

CHAPTER 3: Planning for Ecological Integrity

Learning Through Adaptive Management	3-1
The Current Planning Framework	3-3
Changing the Current Planning Framework	3-6
Planning at the Park Level	3-9
Planning at the National Level	3-17

CHAPTER 4: Building Capacity for Learning and Education

A Science Vision for National Parks	4-2
Science as Necessary Information	4-2
Building Science Capacity	4-6
External Science Capacity: Making Science Connections	4-13

CHAPTER 5: The Need for Active Management and Restoration

Changing Ideas, Changing Approaches	5-1
Restoring Fire — Righting 50 Years of Active Suppression	5-4
Species Restoration — Species at Risk	5-6
Site Restoration	5-7

Dealing with Alien Species	5-8
Harvesting	5-10
Managing Hyperabundant Species	5-12
CHAPTER 6: Tools for Understanding and Assessing Ecological Integrity	
Inventory, Research, and Monitoring	6-1
National and Park-level Reporting	6-9
Data and Information Management	6-12

SECTION D: ABORIGINAL PEOPLES AND NATIONAL PARKS

CHAPTER 7: Working with Aboriginal Peoples

The Lessons of History - From Expulsion to Co-management	7-2
Shared Vision — The Spirit of Ecological Integrity	7-3
Forming Genuine Partnerships	7-4
Aboriginal Harvest in National Parks: From Rights to Responsibilities	7-5

SECTION E: PROTECTED AREAS AND PARTNERSHIPS

CHAPTER 8: National Parks in the Canadian Protected Areas Network

Divergent Approaches to Protection	8-2
The National Parks System	8-4
Establishing New National Parks	8-5

CHAPTER 9: From Islands to Networks

National Parks as Ecological Islands	9-1
Regional Empowerment and Responsibility	9-3
Regional Co-operation and National Goals	9-6
Supporting Partnerships	9-9
Legal and Economic Implications	9-14

SECTION F: USE AND ENJOYMENT

CHAPTER 10: Interpretation and Outreach

Interpretation Issues	10-2
Focus Interpretation on Ecological Integrity	10-3
Current and Potential Audiences	10-11
The Importance of Partners in Interpretation	10-17
Marketing and Ecological Integrity	10-19

CHAPTER 11: Enjoyment and Appropriate Use

Use Within Limits	11-2
Allowable and Appropriate Use	11-4
Historical Precedents and Non-conforming Uses: A Clarification	11-9

CHAPTER 12: Shrinking the Ecological Footprint

Ecological Design	12-2
Daily Operations	12-10
Environmental Assessment	12-13

SECTION G: INVESTING IN ECOLOGICAL INTEGRITY

CHAPTER 13: The Need for Committed Investment

Actual Spending Levels are Difficult to Determine	13-2
Reduced Budgets	13-2
Prerequisites to Additional Resources for Ecological Integrity	13-9
Additional Resources	13-11
Additional Resources for New Parks	13-15
Allocation of Project Funds	13-16
The Revenue Policy	13-18

In Closing: Guarding the National Interest

Unimpaired for Future Generations	14-1
The Way Forward	14-3
Initial Steps on the Path	14-4
Signs of Success	14-5

APPENDICES

Appendix A: Methods — How the Panel Worked	A:1
Organization of the Panel and Secretariat	A:1
Biographies	A:3
Appendix B: Glossary	B:1
Appendix C: Report of the Sierra Legal Defense Fund to the Panel	C:1
Appendix D: Parks Canada Organization Chart	D:1
Appendix E: Significant Aboriginal Rights Cases	E:1
Appendix F: References and Further Reading	F:1
Appendix G: Summary of Recommendations	G:1
Mohawk Thanksgiving	Back Cover

Acknowledgements

The Panel on the Ecological Integrity of Canada's National Parks gratefully acknowledges the contributions of the many people who gave their time and energy to make verbal or written submissions to the Panel, and those who provided information on request or through contractual arrangements. We had the privilege of travelling across Canada, hearing from literally hundreds of people, including governments, non-government agencies, Aboriginal peoples, industry, farmers, foresters, academics and park staff on the future of Canada's national parks. We always received thoughtful comments. The insight and suggestions we received exceeded our expectations and are reflected in our report. In particular the Panel wishes to thank staff of the Parks Canada Agency across Canada for their forthright comments. Without such honesty and dedication, the Panel could not have accomplished its work.

The Panel also extends sincere thanks to our Secretariat, who tirelessly sought information, made meeting, workshop and travel arrangements, and provided valuable input in a myriad of ways.

Editor's Notes

Each of the Panel members, the Panel's international advisors, and the Panel Secretariat contributed their words, ideas and energy to this work. There is no single author although certain members took the lead in preparing the report's individual chapters. In editing the report it's been my intention not to homogenize the text but to allow the voices and passions of Panel members to speak directly to the reader.

Throughout this report, Panel members quote extensively from published materials, as well as from verbal and written submissions made during the Panel's many sessions in national parks and other locations across Canada. Many of these submissions were made in confidence, enabling those making submissions to treat sensitive topics openly and honestly. For that reason, the Panel has chosen not to identify the source of submissions quoted throughout this report, but to identify some sources only as a "submission to the Panel."

Throughout both volumes of the report, I have used several conventions, as follows:

- italics indicate a direct quote;
- sidebars — short pieces of text set off from the main text of the report by horizontal lines above and below — provide additional information or details to supplement the main text;
- the Panel's recommendations are clearly set apart from the main text by a black title box.

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Ecological Integrity in National Parks Policy

Evolution of the Concept

"The day will come when the population of Canada will be ten times as great as it is now, but the national parks ensure that every Canadian...will still have free access to vast areas possessing some of the finest scenery in Canada, in which the beauty of the landscape is protected from profanation, the natural wild animals, plants, and forests preserved, and the peace and solitude of primeval nature retained."

James H. Harkin,
Commissioner, Dominion Parks Branch (c. 1920)

Parks are hereby dedicated to the people of Canada for their benefit, education, and enjoyment, subject to the provisions of this Act and Regulations, and such Parks shall be maintained and made use of so as to leave them unimpaired for the enjoyment of future generations.

National Parks Act (1930)

Ecological and historical integrity are Parks Canada's first considerations, and must be regarded as prerequisites against use. Protection of heritage resources is fundamental to their use and enjoyment by present and future generations.

Parks Canada Policy (1979)

Maintenance of ecological integrity through the protection of natural resources shall be the first priority when considering Park zoning and visitor use in a management plan.

National Parks Act Amendments (1988)

Protecting ecological integrity and ensuring commemorative integrity take precedence in acquiring, managing, and administering heritage places and programs. In every application of policy, this guiding principle is paramount. The integrity of natural and cultural heritage is maintained by striving to ensure that management decisions affecting these special places are made on sound cultural resource management and ecosystem-based management practices.

Parks Canada,
Guiding Principles and Operational Policies (1994)

Whereas it is in the national interest...to maintain or restore the ecological integrity of national parks ... to maintain ecological and commemorative integrity as a prerequisite to the use of national parks and national historic sites, and... to manage visitor use and tourism to ensure both the maintenance of ecological and commemorative integrity and a quality experience in such heritage and natural areas for this and future generations.

Parks Canada Agency Act (1998)



SECTION A: A PANEL EXAMINES THE ISSUES

CHAPTER 1: A SACRED TRUST

Protecting Ecological Integrity: A Vital Mission

Conserving, restoring and maintaining ecological integrity is the core of Parks Canada's mandate for national parks, yet some Canadians have expressed concern for the ecological integrity of their national parks. In 1996,

the Banff-Bow Valley Task Force documented the serious environmental pressures in Banff National Park, raising questions about whether the ecological integrity in other parks was also under pressure. In 1998, the Minister of Canadian Heritage, Hon. Sheila Copps, asked a panel of Canadians with expertise in ecological sciences and related fields "to assess

the strengths and weaknesses of Parks Canada's approach to the maintenance of ecological integrity in Canada's national parks and, based on this assessment, provide advice and recommend how best to ensure that ecological integrity is maintained across the system of Canadian National Parks."

Members of the Panel on the Ecological Integrity of Canada's National Parks ("the Panel") travelled to a series of representative national parks to speak with park staff and other interested Canadians, to see first-hand the problems and stresses that threaten Canada's national parks, and to develop a sense of how to address these problems. The Panel's membership and methods are described in Appendix A.

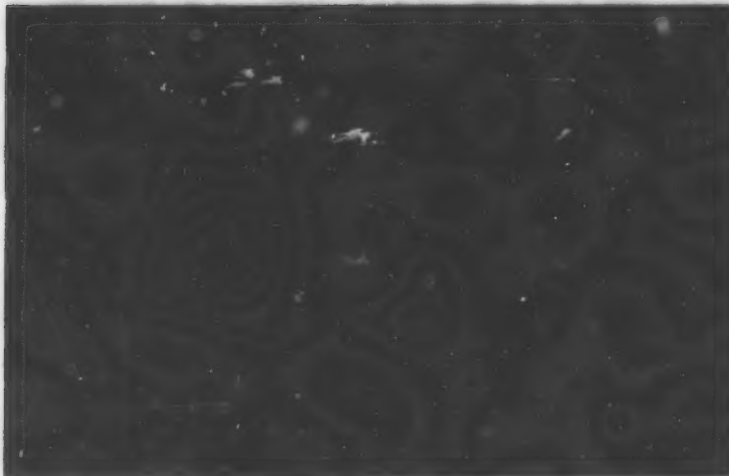
Canadians love their national parks. That clear message was common across the land as we spoke with Canadians about the future of national parks. Through our travels, meetings and discussions with the hundreds of dedicated Parks Canada employees, Aboriginal peoples, park neighbours, advocates and friends who shared their time and sacred places with us, we began to grasp the challenges in protecting, unimpaired, Canada's wonderful national parks. The task at hand is vital, it is urgent and it is complicated. Achieving the goal of maintaining ecological integrity will require dedication, co-operation, learning and agreement from all Canadians, politician to park manager, park visitor to park neighbour.

The following report contains our thoughts on the path ahead.

According to a cross-Canada poll taken in November 1999, 91 per cent of Canadians feel it is important that governments take action to protect the wilderness, 83 per cent believe it is important for Canada to be seen as an international leader in protecting wilderness, and 80 per cent want to see protected areas established before lands are committed to industrial development.

from an article by John Turner
in *The Globe and Mail*
December 8, 1999

Cameron Lake, Waterton
Lakes National Park.
Blackbird Design



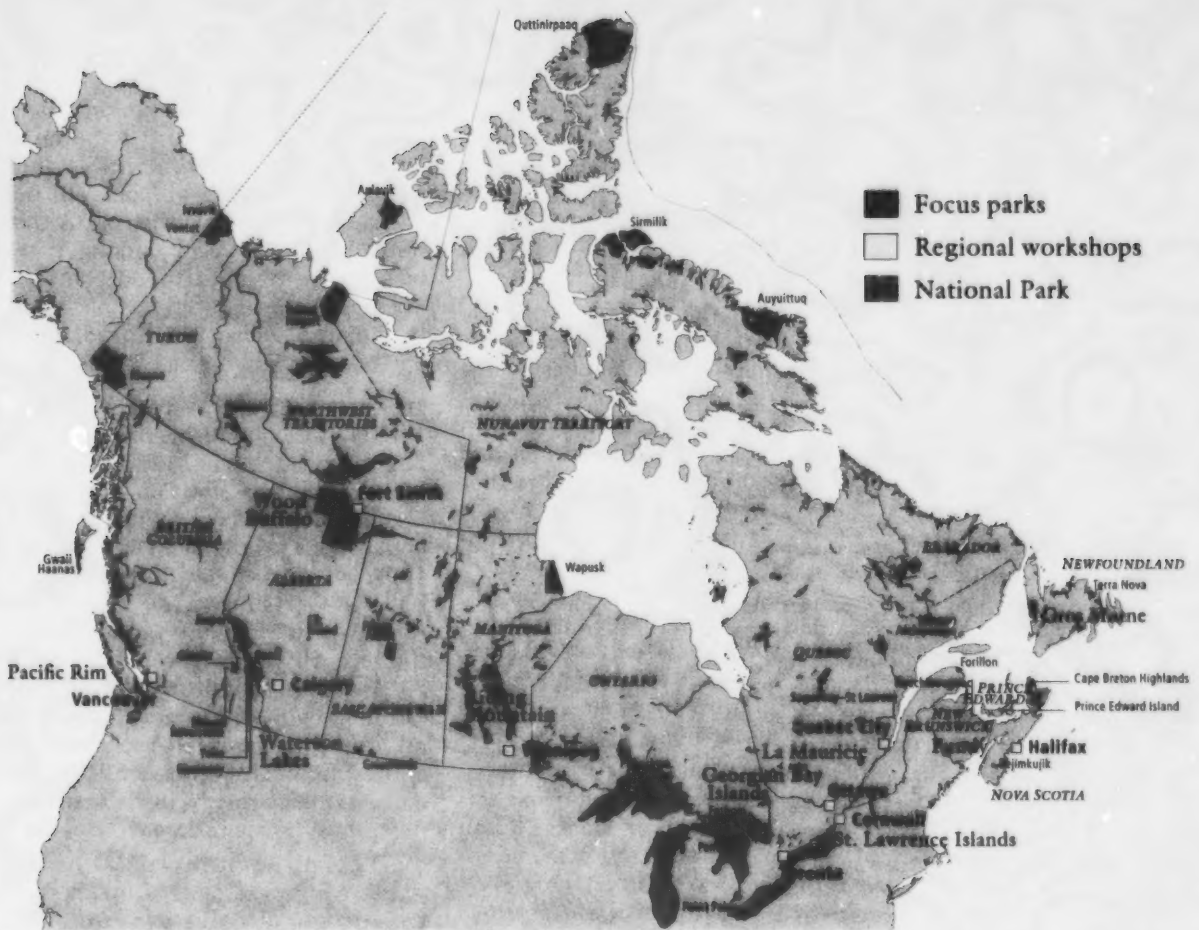


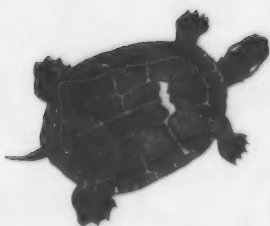
Figure 1-1 Canada's national parks (as of December 1999). The focus parks visited by the Panel are shown in red.

National Parks in the Canadian Mind

National parks are a Canadian institution. Their role in Canadian society is far greater than their actual area within the Canadian landscape. These are the places where Canadians protect, study and learn about the living diversity of nature; where Canadians celebrate their identity as citizens of a uniquely wonderful land. Just as national historic sites and other cultural heritage places help root Canadians in a shared and diverse history, so do national parks and other protected areas help root Cana-

dians in the geographic and biological diversity that defines the Canadian people — even if day-to-day urban lives of most Canadians seem to have little connection with nature.

The Canadian psyche nurtures the belief that just beyond the country's cities and towns exists a wild area that makes Canada a better country simply because such wilderness exists. This myth of Canadian wilderness is increasingly challenged by widespread environmental changes.



Canadians' love for and spiritual connection to the land, especially wild places, has generally not been celebrated through rituals or rites. Yet the message that national parks are special, even sacred, places rang out in the diverse ways that people spoke to the Panel about their devotion and pride in Canada's most magnificent spaces.

Many people spoke to us about the intrinsic worth of parks: places where nature unfolds as it always has, where ecosystems, species, genetic varieties and ecological processes endure in

all their diversity and complexity; places that help to revitalize the surrounding, more intensively worked lands. In national parks, nature and its component species and systems are valued in their own right, and not just for their usefulness to humanity.

Other people told us of their personal experiences of parks. Some recalled family memories and traditions entangled with the waters, trees, mountains, fish and wildlife of the parks. Some spoke of the parks as havens for the soul and

for replenishment, where they seek peace, solitude, and pure pleasure from wilderness. And some who only rarely visit parks talked of them as green spaces in the mind, giving comfort simply from the awareness that they are there, unimpaired, as they always have been. From Aboriginal peoples we heard of the spiritual, cultural, and traditional harvesting values of the lands in the parks, and of how deeply — in community and across time — these traditional values are held.

What the Panel heard from individual Canadians is consistent with broader surveys of public attitudes. Seventy-one per cent of Canadians see national parks among the top four "very important" symbols of Canadian identity, right alongside the Charter of Rights and the flag, and behind only the health care system. Canadians rank national parks well above the national anthem, the Royal Canadian Mounted Police, the Canadian Broadcasting Corporation, and hockey (Enviroics, 1997).

In Trust for the Whole Planet

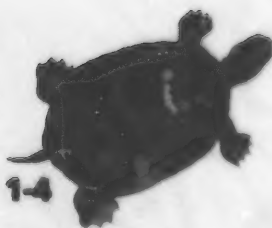
The responsibility for managing Canada's national parks is not only a trust with implications for Canadians, it is also a trust with broad environmental implications for the planet. In October 1999, world population reached six billion, and is projected to increase to between seven and nine billion in the next 50 years (Worldwatch, Sept. 23, 1999). It is against this backdrop of human population growth and the associated rise in resource consumption and environmental pressures that the global significance of Canada's national parks must be appreciated.

Most countries in the world have a system of protected areas. In an often-chaotic world, parks and protected areas are a point of human agreement. Certainly protected areas are practical approaches to biodiversity conservation, but they also speak to the other parts of the human condition. Protected areas are human statements that nature is more than a resource to be counted and that the wonder of life on Earth deserves preservation for its own sake.

Wilderness is increasingly precious. The doors have already closed for maintaining significant expanses of wilderness in many other regions of the globe. Twenty per cent of the world's remaining wilderness lies within Canada's borders. Of the Canadian wilderness areas that are protected, 40 per cent

"We believe passionately that national parks may hold answers to some of the most profound questions troubling humanity as it tries to find its place on Earth. Those answers have to do with our need for restraint, for compassion towards other forms of life and the processes which sustain them, and for far-sightedness in terms of time and space when it seems the present is under siege and the future so uncertain. But if we can set aside self-interest in favour of the larger interest — whether that is defined in ecological, social, or even spiritual values — and care as much about those who follow us as we do about our immediate gratification, what may seem impractical or unrealistic today, may well be possible tomorrow. National parks will flourish only where pragmatism is tempered by boldness of vision."

submission to the Panel



are within national parks (provincial and other protected areas make up the

balance). Thus Canadian national parks are a key part of both Canadian and global conservation strategies. This internationally important ecological role was the basis for the inclusion of nine Canadian national parks within World Heritage Sites. In addition, three sites within national parks are designated Ramsar sites (wetlands of international importance, designated under an international convention signed in Ramsar, Iran) and two national

parks lie within United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserves. According to the World Wildlife Fund, Canada is home to one quarter of the world's temperate coastal forest, one third of the world's boreal forest, nearly all of the remaining old-growth red and white pine, one third of the global population of wolves, more than half the world's barren ground caribou and two-thirds of all the world's polar bears.

Protected Areas in the Canadian Landscape

In 1990, the federal government promised to represent each of Canada's 39 natural regions with a national park, and is slowly implementing this promise (at the end of 1999, 39 national parks had been established in 25 terrestrial natural regions, leaving 14 regions yet to be represented). The October 1999 Speech from the Throne committed the federal government to expanding the national parks system.

National, provincial and territorial parks and wilderness areas, First Nations lands and privately-owned lands protected under conservation easements or other mechanisms are types of protected areas. Such areas must link together, to function as a network that protects ecosystems across borders and boundaries. National parks are administered by Parks Canada, but the continued well-being of these much-loved places is a responsibility for all Canadians, collectively and as individuals.

Once a national park is established, the more enduring task of maintaining its ecological integrity begins. This mission is no less urgent than the mission of designating new parks, which currently enjoys a higher profile. To remain unimpaired for the enjoyment of future generations, national parks must remain areas with whole and complete biological systems, including species, landscape elements and processes.

With their ecological integrity protected, parks will also be able to provide humans with spiritual inspiration and physical renewal, and serve as centres for regional ecological research and understanding, learning and education. Communities, businesses and land use agencies in or near national parks benefit economically and in terms of quality of life from the national park in their midst. National parks also contribute to the healthy functioning of ecological "services" such as nutrient

The Global Context

Despite the growing worldwide recognition of the importance of national parks and protected areas, less than five per cent of the planet's surface is afforded protection under IUCN [World Conservation Union] categories. The distribution of these areas is not biogeographically balanced; some key ecosystems, such as tropical dry forests, fresh waters, temperate rainforests, temperate grasslands, Mediterranean-climate areas, and oceanic islands are under represented.

Recommendation 16, Expanding the global network of protected areas, IUCN report of the IVth World Congress on National Parks and Protected Areas (1992)

World Heritage Sites

National parks in Canada that lie within designated World Heritage Sites:

Banff, Jasper, Yoho and

Kootenay national parks

Gros Morne National Park

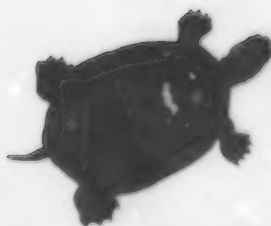
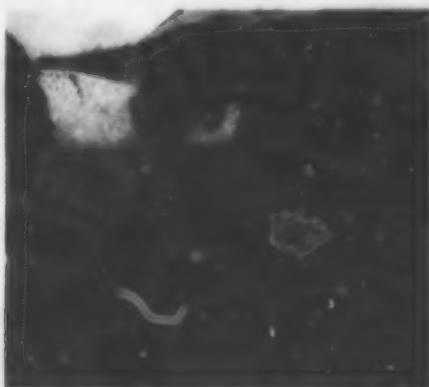
Kluane National Park Reserve

Nahanni National Park

Waterton Lakes National Park

Wood Buffalo National Park

Rafting on the Nahanni River
below Virginia Falls. Butterill/
Parks Canada



cycling, clean drinking water supply and flood control, climate control, fish spawning grounds, pollination and natural pest control. These processes underpin the everyday functioning of the economy and many jobs.

Centres for Understanding and Education

Canadians want to know about the state of their land. By understanding the ecological condition of national parks, Canadians can understand the ecological condition of Canada. National parks, by design, are spread across Canada and represent different

natural regions. A park's ecological integrity is greatly influenced by the condition of the larger region. Parks are sentinels, ecological benchmarks against which change in the larger region can be assessed. They have a powerful potential to be centers of regional ecological research and understanding.

In signing the international Convention on Biological Diversity (1992), Canada pledged to set

aside protected areas for conservation, to monitor change in biological diversity, to conduct research into biological diversity, and to make the public aware of diversity's importance. National parks are perfectly suited for meeting this commitment.

Parks also provide opportunities for education, through formal research, through interpretation centres and programs, through outreach programs and through direct experience of wild places.

Divergent Futures

The extent of ecological stresses on most of the national parks has been documented in the 1994 and 1997 State of the Parks Reports. In looking at these pressures, the Panel was conscious that we were only hearing about the pressures of today. Yet greatly amplified pressures undoubtedly lie ahead. Population growth, urban expansion, resource exploitation disturbances, habitat fragmentation, and increased demand for leisure opportunities will only intensify the stresses on nature within and surrounding national parks.

Canadians stand at a junction with divergent paths. Each leads towards a different kind of national park, and a different natural landscape for Canada. Canadians are currently travelling the path that leads to parks that will become islands unable to support natural processes, where animals once abundant and free-ranging will grow scarce or disappear altogether. Along this path, the sacredness of the places that form such an important part of Canadian identity will be lost.

Along another path, Canadians will awaken to the perils that threaten these precious places. Canadians will unite to preserve what is so special. Parks Canada will tenaciously embrace the maintenance of ecological integrity as the overriding priority for managing national parks — consistently, unreservedly, and with pride — in fact and action as it so clearly already is in law and in official policy. With stronger legislation, expanded science capacity and understanding, and new tools to work with neighbouring land managers, Parks Canada will be able to play a pivotal role in restoring ecological integrity to the greater landscape, working in collaboration with others. Along this path, Canada will retain its distinct wilderness heritage in trust for the world.

National Parks as Ecological Benchmarks

"The most important role for national parks is to act as benchmarks against which we evaluate change. When we harvest forests, or fish, or grow crops, we need benchmarks to ensure our activities are sustainable. National parks are places where we don't harvest or grow crops. Yes, they are important as places to be in wild nature. But they are even more important as benchmark areas where we understand how our actions are changing the rest of the landscape. National parks are a crucial part of a grand strategy of sustainability."

submission to the Panel

"Without more intense efforts by Parks Canada and the provinces, our mountain parks will be like the Alps — beautiful to look at but lacking any ecological integrity."

research scientist,
submission to the Panel



A Vision for Canada's National Parks

Throughout this report, we identify problems, concerns or issues and make specific recommendations to address them. What follows below is a vision that sets the framework into which all the following chapters and recommendations fit.

This vision is a look into the future, a statement of "how things are" in 2025, one generation from now. The Panel feels strongly that if Canadians do not achieve this vision within one generation, nature will foreclose on Canada's ecological debts, and national parks with ecological integrity will be an ever-dwindling option.

This vision statement uses the words "we," "us" and "our." By these words the Panel means all Canadians, for national parks are lands that truly belong to everyone across the country.

It is 2025. Canadians have a personal connection to wilderness and we manifest that connection by choosing to protect wild places. We choose to protect wild places because such places speak directly of our respect for all forms of life and for the land, air and water that sustain us and our understanding that we are part of the same interdependent ecosystem. We choose to protect wild places so that nature can operate under its own rules, so we can understand nature's fundamental ways. We choose to protect wild places so that we may go there to touch the Earth in its wild state, to satisfy our need for emotional and spiritual ties to our sacred land. We choose to protect wild places so that our children and theirs may know the same awe, challenge, fascination and love that we feel in these places. And we choose to protect wild places so that each and every Canadian can collectively celebrate and appreciate wild places.

In 2025 Canada has an extensive system of national parks, established through bold moves of Parliament and the Canadian public. From Terra Nova in the east to Gwaii Haanas in the west, from Quttinirpaaq on Ellesmere Island in the north to Point Pelee in the south, our national parks system includes at least one national park in each of Canada's terrestrial and marine natural regions. Canadians recognize that it is our duty to hold these lands in trust on behalf of the global community, because rising human population and resource exploitation have diminished wilderness elsewhere.

In recognition that national parks by themselves cannot sustain ecological integrity, even their own, Canada's national parks are embedded within a mosaic of protected areas — provincial, territorial, and municipal parks, Aboriginal lands, private lands and a myriad of other protected areas. The diverse components of these protected areas have different management purposes but all contribute to the protection of wildlife and vegetation, air and land and water. The protected areas network compliments a broader landscape managed for sustainability. The broader landscape includes carefully managed farms and forests, mines and other uses that meet the material needs of Canadians. This landscape allows for the free movement of wildlife and protects habitat such that endangered species are rebuilding viable populations.

The protected areas network is recognized by Canadians as necessary to protect biodiversity, which in turn is valued for its own sake and is regarded as necessary to provide benchmarks against which change in other areas can be measured and evaluated. Canada is recognized as a world leader in protecting and understanding biodiversity. National parks act as regional centres of ecological understanding, working with schools and acting as resource centres for citizens and industry.

This protected areas network is the result of co-operation and partnerships. Protected areas are managed co-operatively by those responsible for land use decisions that influence national park ecosystems. This co-operative management is based on respect, equity and empowerment; as a result, local communities support and treasure nearby national parks.

Aboriginal peoples across Canada have active roles in the national parks within their respective traditional lands. Aboriginal peoples are at home in national parks and Canadians celebrate Aboriginal knowledge. We are confident that the holistic approach to land and resource use, as practiced traditionally by Aboriginal peoples, respects the land, air, water, wildlife and vegetation.

National parks staff are committed to the protection of ecological integrity. Staff at all levels are confident in the pursuit of their mandate, supported by legislation and guiding principles that clearly identify the protection of ecological integrity as the first priority of national parks.



They are innovative, creative and bold in their approach to finding solutions to challenges that may affect ecological integrity.

National parks staff firmly advocate for protection beyond national park boundaries, and that influence has created awareness and sparked action among other jurisdictions to support land use decisions that protect land, air, water, wildlife and vegetation. In particular, provincial and territorial governments, and industrial leaders, work closely with national parks and other protected area managers to find sustainable solutions to development issues.

Innovative ecosystem-based management is possible because of Parks Canada's extensive capacity in the social and natural sciences, enabling national parks to make sound decisions within park boundaries. By sharing this excellence with other partners, national parks are able to

influence decisions made in surrounding landscapes.

Above all, Canadians recognize and embrace our individual responsibility to help conserve that which is unique and special about national parks. Those of us who live in urban areas, far from a national park, appreciate and celebrate the existence of protected natural landscapes as much as frequent park visitors. Our national parks are places of learning and enjoyment; they are also catalysts for personal growth and action, places that can and do change our lives.

Canadians and guests from around the world embrace the notion of use without abuse so that national parks will continue to occupy a position of honour in the Canadian mind, icons that reflect the very soul of Canada to Canadians, and to the world.

Ecological Integrity: Issues and Fundamental Concepts

Our Main Message: A Mandate in Peril

There is much more to protecting ecological integrity than simply designating an area as a national park. How can Parks Canada achieve ecological integrity in places as small as St. Lawrence Islands National Park — nine square kilometers of fragmented tiny islands in the busiest shipping lane in Canada — or as enormous as Wood Buffalo National Park, where the processes of fire, flood and grazing are at scales almost beyond human comprehension? Maintaining and restoring ecological integrity in such a diverse national park system is an immense undertaking.

The Panel was deeply troubled to learn that despite many good efforts, ecological integrity is being eroded in most national parks. According to Parks Canada's own State of the Parks 1997 Report, only one of the 38 national parks that were established at that time (there are now 39) was considered to be in pristine condition (Figure 1-2).

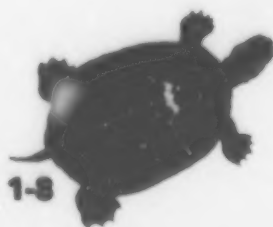
Thirty-one of 38 national parks reported ecological stresses from significant to severe, and in 13 parks these stresses had increased in intensity since 1992. The majority of parks are reporting significant and accelerating loss of ecological integrity. This is most true in the smaller and more southern parks, but is occurring even in the larger and more northerly parks.

While many Canadians have heard about ecological problems in Banff National Park, there appears to be a general lack of public appreciation that many other national parks also have serious ecological problems. Banff may have the highest visitation levels of any Canadian national park, but its problems are not at all unique.

The Panel concurs with the conclusions in the State of Parks 1997 Report. Ecological integrity in our national parks is in peril.

Despite many examples of excellent work in parks to maintain and restore ecological integrity, the challenge is growing and in many cases we are losing ground.

Parks Canada, State of
Parks 1997 Report



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Key Findings of the Panel on Ecological Integrity

• Ecological integrity in Canada's national parks is under threat from many sources and for many reasons. These threats to Canada's national sacred places present a crisis of national importance.

• To successfully manage national parks with a conservation focus, Parks Canada must establish a clear vision around the primary objective of protecting ecological integrity, and align the whole organization behind this agenda. Shifts in decision-making, staffing, training and

relations with employees and park neighbours are needed to accomplish this transformation. Making these shifts, to create an internal culture of conservation, is the single biggest challenge facing Parks Canada.

• Despite a great deal of planning activity, and the fact that policies to enact management for ecological integrity are clearly in place, Parks Canada is still grappling with how to translate policies into plans, how to translate plans into action, and how to evaluate the consequences of those actions to adapt to constantly-changing circumstances. Parks Canada must restructure planning in a way that puts ecological integrity at the core of the whole process.

• Parks Canada currently lacks the necessary capacity in both the natural and social sciences to effectively manage for, and inform society about, ecological integrity in national parks. With notable individual exceptions, all levels of Parks Canada lack a well-established culture for conducting, using, and appreciating science as part of park management, interpretation and regional integration. Knowledge derived from the natural and social sciences, including Aboriginal peoples' naturalized knowledge, should be the basis for informed decisions, management actions and education within parks and beyond park boundaries.

• Parks Canada's Guiding Principles and Operating Policies state that ecosystems should evolve in the absence of most human intervention. However, a policy of laissez faire management in national parks may undermine ecological integrity, especially if past actions are not considered. In order to compensate for past actions, active management may be required to restore processes or species within national parks. Active management should occur where there are reasonable grounds that maintenance or restoration of ecological integrity will be compromised without it. Because of the difficulty in predicting ecosystem response, active management should be undertaken in national parks using adaptive management techniques.

• Assessing and understanding ecological integrity requires three interrelated tools: inventory, research and monitoring. Understanding ecological integrity is a complex task that will require significant investment in expertise as well as internal training. Parks Canada is already well along the road to an operational understanding of ecological integrity and has an opportunity to take on a leadership role in understanding the state of Canada's ecosystems.

Park	Cumulative Impacts of all stressors	Impacts from external sources	Impacts from internal sources
Vuntut	1	1	1
Ellesmere	2	2	2
Wapusk	2	2	1
Cape Breton Highlands	3	4	2
Gros Morne	3	3	3
Inuvik	3	3	1
Nahanni	3	3	1
Wood Buffalo	3	3	2
Waterton Lakes	4	4	2
Elk Island	4	5	3
Georgian Bay Islands	4	4	2
Jasper	4	4	4
Kootenay	4	4	3
La Mauricie	4	5	3
Riding Mountain	4	4	3
Yoho	4	4	3
Prince Edward Island	5	5	4
Point Pelee	5	5	5

Level of impairment
1 = none 2 = minor 3 = significant 4 = major 5 = severe

Figure 1: Ecological integrity in Canada's national parks in the State of the Parks 1997 Report.



Key Findings of the Panel on Ecological Integrity

• Ecological integrity in Canada's national parks is under threat from many sources and for many reasons. These threats to Canada's national sacred places present a crisis of national importance.

• To successfully manage national parks with a conservation focus, Parks Canada must establish a clear vision around the primary objective of protecting ecological integrity, and align the whole organization behind this agenda. Shifts in decision-making, staffing, training and

relations with employees and park neighbours are needed to accomplish this transformation. Making these shifts, to create an internal culture of conservation, is the single biggest challenge facing Parks Canada.

• Despite a great deal of planning activity, and the fact that policies to enact management for ecological integrity are clearly in place, Parks Canada is still grappling with how to translate policies into plans, how to translate plans into action, and how to evaluate the consequences of those actions to adapt to constantly-changing circumstances.

Parks Canada must restructure planning in a way that puts ecological integrity at the core of the whole process.

• Parks Canada currently lacks the necessary capacity in both the natural and social sciences to effectively manage for, and inform society about, ecological integrity in national parks. With notable individual exceptions, all levels of Parks Canada lack a well-established culture for conducting, using, and appreciating science as part of park management, interpretation and regional integration. Knowledge derived from the natural and social sciences, including Aboriginal peoples' naturalized knowledge, should be the basis for informed decisions, management actions and education within parks and beyond park boundaries.

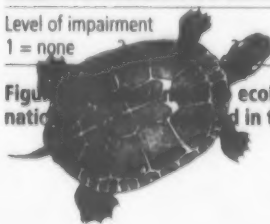
• Parks Canada's Guiding Principles and Operating Policies state that ecosystems should evolve in the absence of most human intervention. However, a policy of laissez faire management in national parks may undermine ecological integrity, especially if past actions are not considered. In order to compensate for past actions, active management may be required to restore processes or species within national parks. Active management should occur where there are reasonable grounds that maintenance or restoration of ecological integrity will be compromised without it. Because of the difficulty in predicting ecosystem response, active management should be undertaken in national parks using adaptive management techniques.

• Assessing and understanding ecological integrity requires three interrelated tools: inventory, research and monitoring. Understanding ecological integrity is a complex task that will require significant investment in expertise as well as internal training. Parks Canada is already well along the road to an operational understanding of ecological integrity and has an opportunity to take on a leadership role in understanding the state of Canada's ecosystems.

Park	Cumulative Impacts of all stressors	Impacts from external sources	Impacts from internal sources
Vuntut	1	1	1
Auyuittuq	2	2	1
Ellesmere	2	2	2
Mingan Archipelago	2	2	1
Wapusk	2	2	1
Aulavik	3	3	1
Cape Breton Highlands	3	4	2
Forillon	3	4	2
Gros Morne	3	3	3
Gwaii Haanas	3	4	2
Ivvavik	3	3	1
Kluane	3	3	2
Nahanni	3	3	1
Prince Albert	3	5	3
Wood Buffalo	3	3	2
Banff	4	3	4
Waterton Lakes	4	4	2
Bruce Peninsula	4	4	3
Elk Island	4	5	3
Fundy	4	5	3
Georgian Bay Islands	4	4	2
Grasslands	4	4	3
Jasper	4	4	4
Kajimikujik	4	4	3
Kootenay	4	4	3
Kouchibouguac	4	4	4
La Mauricie	4	5	3
Pukaskwa	4	4	2
Riding Mountain	4	4	3
Terra Nova	4	4	4
Yoho	4	4	3
Revelstoke, Glacier	4	5	3
Prince Edward Island	5	5	4
Pacific Rim	5	5	3
Point Pelee	5	5	5
St. Lawrence Islands	5	5	2

Level of impairment
1 = none 2 = significant 3 = moderate 4 = major 5 = severe

Figure 1: Ecological integrity in Canada's national parks in the State of the Parks 1997 Report.



• Until recently, national parks' creation and ongoing activities have largely ignored the Aboriginal human aspect of park ecology. As a result, naturalized knowledge and values are now generally lacking in national parks. This ignorance of naturalized knowledge has contributed to the decline of ecological integrity in many parks. A process of healing is needed to develop trust and respect and to facilitate two-way communication and education between Parks Canada and Aboriginal peoples.

• National parks today are one part of a complex network of federal, provincial, territorial and First Nations protected areas. In the last few decades, private land conservation agreements have played an increasing role in southern Canada, and voluntary stewardship is now an important part of the protected areas mosaic. A comprehensive national protected areas strategy that folds in the myriad layers of conservation goals does not yet exist. In addition, although Parks Canada strives to provide the best possible representation of each region's biophysical characteristics, the final choice of park candidate area has often been dictated by factors not related to ecology.

• In much of Canada, protected areas have become ecological islands, disconnected from other areas of remaining natural habitat. Increasingly, national parks and other conservation lands are surrounded by urban development, agriculture, industrial forestry or other land uses that affect the viability of park ecosystems. To maintain ecological integrity, the network of national parks and other protected lands needs to be managed as part of greater ecosystems. This requires the co-operation and contribution of provincial and territorial governments, First Nations governments, communities, adjacent landowners, non-governmental organizations and industry.

• Interpretation is a key purpose for national parks. Parks Canada is currently not well-positioned to serve its target audiences in terms of this vital education role. Much of Parks Canada's existing interpretation information, assets and materials are out-dated. More effective communication on ecological integrity requires attention to policy, strategy, partners, and evaluation related to interpretation. Public support for protecting ecological integrity will come from strong messages emphasizing the positive aspects of ecological integrity. Parks Canada needs to explore new media and means of delivering interpretation messages to non-traditional audiences.

Use of national parks has been among the historical goals of Parks Canada, and must continue to be managed to reflect the Canadian character and heritage.



Recreation may be harming the delicate dunes of Cavendish Beach in Prince Edward Island National Park. T. Grant/Parks Canada

In order to protect ecological integrity, human use in national parks must be based on the principle of responsible experience: use without abuse. Human use must also pass the dual tests of allowability and appropriateness. These tests are currently not clearly defined and thus policies of use are inconsistent and uncertain. Parks Canada must develop a formal assessment program on both allowable and appropriate activities, and clearly define the term "basic and essential services" so that strong and consistent decisions can be made at the park level.

• The built environment of national parks, including infrastructure, visitor facilities, and the procedures needed to maintain them, directly affects ecological integrity and visitor's perceptions of Parks Canada's commitment to it. Successfully limiting the size and impact of the built environment will require that responsibility and accountability for ecological integrity become part of the daily tasks of every national park staff person. Additionally, protection of ecological integrity must translate into appropriately designed and operated infrastructure.

• To pursue its objective of protecting ecological integrity in Canada's national parks, Parks Canada will need a supportive financial framework alongside a supportive management framework. The strengthening of natural and social science capacity, and the interpretation and partnership programs recommended by the Panel will require substantial additional financial resources. This new money is a necessary condition for giving a more rigorous focus to ecological integrity, but money alone will not suffice. Several "first steps" are needed to improve the broader management framework for ecological integrity in Parks Canada that should be implemented before the allocation of any new funds.

Ecological Stresses Are Significantly Affecting Most National Parks

Stresses originate from both inside and outside the parks. Inside the parks, the presence of alien species, the suppression of natural fires, high levels of visitor use, transportation corridors, non-conforming activities, and inappropriate infrastructure all affect ecological integrity. Stresses from outside also cause problems, ranging from regional to global in nature. Regional stresses come from landscape fragmentation due to human uses of the lands adjacent to national parks, such as urban development, logging, mining, agriculture, and transportation. Stresses of a global nature, such as long-range movement of air pollutants and climate change, are also affecting ecological integrity within parks. Parks are part of interconnected ecosystems and very much reflect the state of the larger regions where they are located.

A sample of the broad internal and external issues facing Canada's parks includes:

- **habitat loss** - in Canada, over 90 per cent of Carolinian forests have been converted to farmland or towns. On the prairies, 99 per cent of the native tall-grass communities and 75 per cent of mixed grass communities have disappeared. In Atlantic Canada, 65 per cent of the coastal marshes have been drained or filled. Across northern Canada, only 35 per cent of the boreal forest remains undisturbed. Largely as a result of this habitat loss, many Canadian species are currently threatened;
- **habitat fragmentation** - fragmentation of remaining habitat is as serious a problem as habitat loss. Many species, from grizzly bears to flying squirrels and salamanders have difficulty surviving in habitats that are broken into isolated fragments.

Even within parks, fragmentation occurs as a result of developments

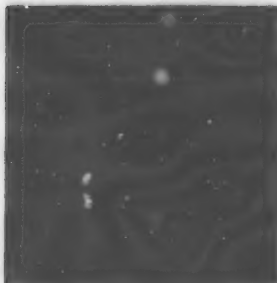


A young black bear killed on a road in Riding Mountain National Park. Parks Canada

such as communities, facilities, trails, roads and railways. Roads and railways also cause direct wildlife mortality. Hundreds of large mammals and thousands of birds, amphibians and other creatures are killed on park roads each year;

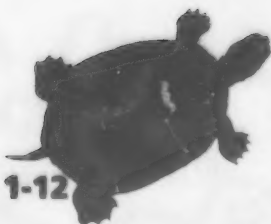
- **losses of large carnivores** - across Canada and especially in the south, large carnivores are disappearing or are absent, spinning natural predator-prey relationships and systems out of control. Even though large carnivores are protected within national parks, these predators are threatened by stresses such as human use and development inside parks, as well as hunting, land development, and other pressures that occur outside park boundaries. From Ontario eastward, wolves are gone from all national parks except Pukaskwa and La Mauricie. In the west, wolves have been extirpated from Elk Island and Grasslands national parks. In several national parks — including Riding Mountain, La Mauricie, Banff and Waterton — wolf populations are low and struggling;





Loons in some national parks are exhibiting high mercury levels in their feathers.
B. Morin/Parks Canada

- **air pollution** – airborne pollutants, such as those which cause acid rain, continue to harm many parks. Atlantic Canada and southern Québec have been called the “tailpipe of North America” because this area lies downwind from the major urban and industrial regions of the continent. More than two decades of research at Kejimikujik National Park show that low pH levels in the park’s waters are associated with decreased reproductive success of brook trout. Georgian Bay Islands and La Mauricie national parks continue to face the risk of acid deposition in excess of the ability of landscapes within these parks to buffer sulphate and other acidic compounds;
- **pesticides** – pesticides used outside of parks are being detected within parks. For example, the pesticide toxaphene was widely used (outside of national parks) until two decades ago. It can disrupt endocrine systems, damage lungs, livers and kidneys, and cause problems with reproductive and immune systems, developmental disorders and cancer. Research at Bow Lake in Banff National Park has found toxaphene in some zooplankton, while trout in Bow Lake have toxaphene concentrations up to 20 times greater than other fish in the lake and up to 1000 times greater than trout from other lakes in the park. A study in La Mauricie National Park showed high mercury levels in the blood and feathers of the park’s loons; mercury in their feathers is higher than any other studied site in North America. Mercury levels in loons from Kejimikujik National Parks are also high, leading to reduced nesting and hatching success. The pesticide DDT has been found at significant levels in lake sediments and in fox snakes at Point Pelee National Park. High DDT levels have been correlated with reduced frog populations and species loss in several other parks and wildlife reserves along the northern edge of Lake Erie;
- **alien species** – invading non-native species, both plants and animals, cause problems for parks across Canada. In Point Pelee National Park, garlic mustard is invading Carolinian forests and out-competing native species. In Riding Mountain National Park the high number of alien plant species in the native rough fescue grasslands is a cause for concern as native plants are out-competed by the invaders. In Gros Morne National Park, moose and snowshoe hares introduced to Newfoundland several decades ago are altering habitat and vegetation regimes inside the park;
- **over-use** – growing levels of human use within most national parks have created crowding, overuse of facilities and infrastructure such as sewage treatment systems, over-development and a myriad of other problems that in turn degrade water and air quality, cause erosion and damage wildlife habitat. In Waterton Lakes National Park, every valley has either a road or a hiking trail — or both. Only the most northerly parks have not yet been subject to high use demands. Canada’s national parks receive over 14 million visits every year. With a predicted annual growth rate of approximately 4.5 per cent, that figure will double in just 15 years.

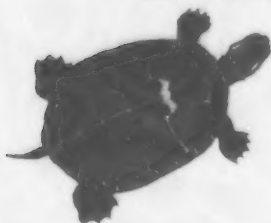


In the parks we visited, the Banek
found:

- on the lands around Waterton Lakes National Park, changing land values threaten to convert extensive ranchlands to small acreage housing developments that would lead to landscape fragmentation. Inside the park every major valley has a road and even the minor valleys have trails and backcountry campsites. These conditions make it difficult for large predators such as wolves and grizzly bears to maintain populations in the area. Fire control has severely reduced fire as a natural process, changing vegetation patterns;
- around Fundy National Park, the park boundary is defined by clearcuts, many of which are converted to plantations of non-native trees. The rivers in Fundy are now devoid of Atlantic salmon, where up to 1000 returning fish once spawned;
- at La Mauricie National Park, the surrounding region is being fragmented by intensive forestry. Wolves, which once inhabited the park, are now absent except in winter, when visitor numbers are low. High levels of sport fishing and introduced alien fish species have affected native trout populations;
- in Riding Mountain National Park, inadequate sewage treatment facilities are putting excessive nutrient loads into aquatic systems. Wolf populations have declined to very low levels and the park appears to be cut off from wolf populations further to the north because of regional land use changes. Alien plants are invading the fescue grasslands, displacing native species;
- even the vast and remote Wood Buffalo National Park has development encroaching from the south, and a forthcoming winter road through the park. Oil and gas exploration is increasingly surrounding the park with seismic lines and access roads;
- in its proposed five-year harvesting plan, a large forest-products company operating near Pacific Rim National Park Reserve wishes to create over 37 new cut blocks near the park boundaries. Some of these are planned to abut the park boundaries while several others are within 75 meters of the park. The park's Broken Group Islands receives very high levels of backcountry use and recreational fishing threatens local populations of rock cod. Resources in the park are so low that staff cannot adequately patrol the area or even put up proper signage;



Are Canadians loving their
national parks to death?
J. Pleau/Parks Canada



Some Published Definitions of Ecological Integrity

Biological integrity is the capability of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition and functional organization comparable to that of the natural habitat of the region.

Karr and Dudley (1981)

When a community is dominated by native species, is relatively stable and shows other attributes of "health," it is said to have integrity.

Noss (1990)

Ecological Integrity is defined as a state of ecosystem development that is optimized for its geographic location, including energy input, available water, nutrients and colonization history.

Woodley (1993)

Ecological integrity is the condition of an ecosystem where:

- the structure and function are unimpaired by human-caused stresses; and
- the ecosystem biological diversity and supporting processes are likely to persist.

Parks Canada, State of the Parks 1997 Report

- Georgian Bay Islands National Park has an area of only 25 square kilometers and is a naturally frag-

mented island group. The additional human-caused fragmentation and habitat loss from roads, marinas and cottage development bring into question the sustainability of the park ecosystems. Fragmentation and habitat loss threatens the regional survival of several species, including the Massasauga rattlesnake;

- in Gros Morne National Park, the issue of regulating snowmobile use has gone on for 20 years, without resolution. Unregulated use is increasing, including non-conforming use in special protection (Zone 1) areas. Recently, a tanker truck travelling through the park spilled its entire load of diesel fuel, threatening marine communities in Bonne Bay. The future may hold more such accidents, as traffic is increasing on the highway that runs through this park;

- St. Lawrence Islands National Park experiences intense summer use levels of 5000 visitors per square kilometre. Very high levels of human disturbance are threatening many populations of reptiles, including the rare fox snake. Native large carnivores have been eliminated and the high deer population is affecting the native plant communities and increasing the invasion of alien plant species.

Clarifying Ecological Integrity: Concept and Definition

The idea of conserving nature unimpaired has been part of national parks' legal mandate since 1930. The term "ecological integrity" was put into the 1988 amendments to the National Parks Act, but was in park policy as early as 1979.

The use of the term "ecological integrity" attempts to put a measurable and defensible definition around the idea of impairment. Ecological integrity is used by many groups, companies and agencies, but in Canada the term is not yet in common public use. It is important that Parks Canada and its partner groups agree upon and operate around a common understanding of the concept of ecological integrity.

While the concept of ecological integrity is based on biological understanding, it is not necessary to be a biologist to understand ecological integrity. "Integrity" denotes wholeness, entirety, or soundness. In simple terms, ecological integrity refers to whole and complete biological systems, including species, landscape elements, and processes. For example, Vuntut National Park has ecological integrity — that is, the park has a full complement of native species and ecological processes and structures — whereas a cornfield in southern Ontario lacks ecological integrity because it has an altered species complement and changed ecosystem functions relative to the historical "whole" or "unimpaired" state. Note that humans are part of both these ecosystems.

The Panel has no particular problem with the existing definitions. However, we learned that park staff at many levels want to be held accountable for managing for ecological integrity, but feel they lack guidance on the definition. In order for managers and auditors to be able to defend appropriate management decisions and actions based on ecological integrity,



the definition needs to be clear and unambiguous. This definition has to be simultaneously:

- narrow enough to focus Parks Canada's efforts to a common, system-wide goal;
- rigorous enough to pass scientific scrutiny; yet,
- flexible enough to account for the fact that some national parks today are highly altered from their historical condition by human activity, yet may nevertheless be managed in ways that might restore integrity, if not necessarily the historical condition.

In addition, the definition must embody some notion of what ecological integrity looks like so that Parks Canada can build defensible policies and plans to get there. The definition, if not the concept, must provide guidance in the sense of direction. Parks Canada needs

to "know ecological integrity when they see it" in order to decide when and where management action needs to be directed.

We propose a definition of ecological integrity that incorporates elements from many published definitions. It is slightly different from the existing Parks Canada definition in that it emphasizes the park as characteristic of the natural region the park represents.

Our proposed definition also de-emphasizes the clause "unimpaired by human-caused stressors" which is in the current Parks Canada definition. That clause is often misinterpreted to mean that people are not part of the ecosystem, or are unwelcome. Certainly people are part of, and even dominate, most world ecosystems. The act of setting aside national parks is an explicit means to hold some lands sacred for their wild state, where humans do not dominate the ecosystem.

RECOMMENDATION

1-1. We recommend this revised definition of ecological integrity:

"An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes."

In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.

For national parks, this characteristic state must respect the following criteria:

- ecological integrity should be assessed with an understanding of the regional evolutionary and historic context that has shaped the system;

- because ecosystems are dynamic, conservation strategies should maintain or restore key ecological processes within their natural range of variability;
- ecosystems are multi-scaled and conservation should be considered at many scales. National parks are part of larger ecosystems and must be managed in that context;
- functional connections between parks and equivalent protected areas within the regional ecosystem should be maintained or restored, to allow wildlife movement;
- populations of species should be managed to levels that have a high likelihood of persistence;



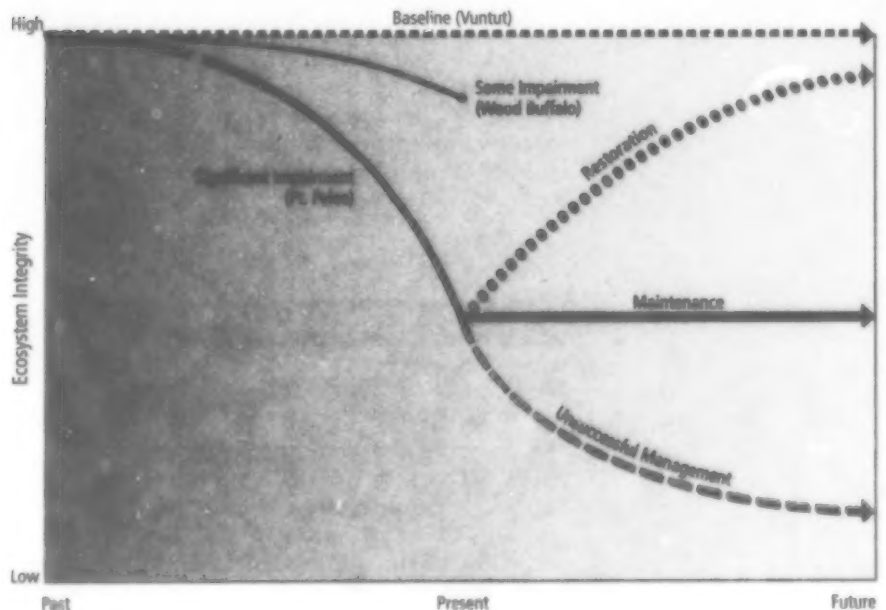
- ecosystems have characteristic rates of change. Understanding rates and direction are critical to understanding the system;
- parks have a finite capacity to withstand use. Human use and facilities should be compatible with park ecosystem protection in type, amount, and timing;
- ecological integrity must be assessed and understood at a landscape scale. While ecological integrity cannot be assessed at the scale of a single forest stand, campground, or parking lot,

it can be compromised at any scale. Even small scale impacts can have cumulative effects and should be considered in this light;

- the goal of conserving ecological integrity is best addressed by maintaining or restoring the diversity of genes, species and communities native to the region. It is simply consistent with the vision of integrity, which is "wholeness" — if parts are missing, the ecosystem is not whole.

Figure 1-3. Managing National Parks for Ecological Integrity: Three Sample Parks

This illustrates various management choices in relation to increasing impairment of ecological integrity. In the case of Vuntut National Park, with pristine ecological integrity, no management is required. As integrity becomes impaired, managers can either maintain the current level or actively intervene to restore the park's ecological condition. Unsuccessful resource management, or a failure to act, will result in a decline in ecological integrity.



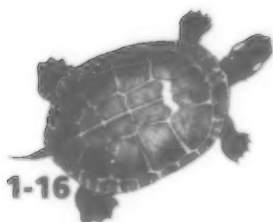
Advantages of the New Definition

Our proposed definition has advantages over the existing Parks Canada definition of ecological integrity.

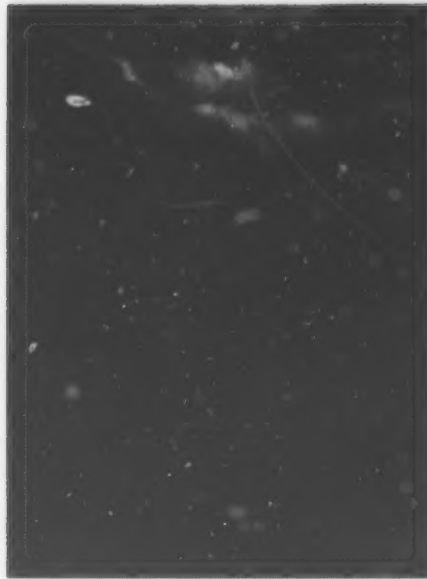
Our definition facilitates management according to the precautionary principle. There is no implied requirement for "proof" that particular components of the ecosystem are necessary for

its persistence, nor to engage in any debate about it. It is enough to manage the ecosystem to avoid loss of, or to restore, native genes, species and communities because the system simply lacks ecological integrity in their absence.

Our definition also justifies active management. For example, where it is unlikely that some native predators will occupy certain parks again, the



Western Brook Pond, Gros
Morne National Park. H. Quan



definition facilitates the active control of herbivores to densities where native plant communities persist. So too, maintenance of natural processes such as fire is encouraged, even if these processes are actively managed.

By using our definition, Parks Canada's mandate to manage for ecological integrity will be buffered from criticism that it is managing for steady state, or turning back the clock. However, the Panel contends that by managing for historic ranges of variation, processes that may take the ecosystem into the future are also conserved. Further, by referring to variation, the definition is immune to red herring arguments about which particular time periods represent the "original" state of ecological integrity. The idea of targets for indicators of ecological integrity imbedded in the definition implies thresholds below which some kinds of human use are compatible and appropriate, and above which Parks Canada can just say "no."

The proposed definition facilitates accountability through goals, direction, and audits, all of which are implied. Finally, our definition facilitates a prioritization of indicators for monitoring ecological change, based on the reliability of data about targets for indicators.

Fundamental Tools

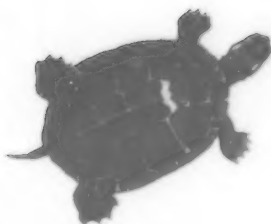
Adaptive Management and the Precautionary Principle


Throughout this report, we refer to two fundamental tools that we feel will aid Parks Canada in its progress toward achieving its mandate. These are adaptive management and the precautionary principle.

In its broadest sense, adaptive management is done whenever the dual goals of achieving management objectives and gaining reliable knowledge are accomplished simultaneously; it is a scientifically defensible means of, literally, learning while doing.

Chapter 3 contains a detailed explanation of how the adaptive management process can be successfully applied within Parks Canada's planning framework; other chapters present similar ideas illustrating how the adaptive management model can be used in other fields.

The other tool that we believe will serve Parks Canada well in embracing ecological integrity is the precautionary principle. As the name implies, the principle emphasizes the need for care and caution when changes to the natural environment are contemplated. This is particularly important when knowledge of a natural system is incomplete or when an area is unusually susceptible to damage.





**Pacific Rim National Park
Reserve. P. Wilkinson**

The precautionary principle is based on several premises (adapted from the Banff-Bow Valley Study):

- nature has intrinsic value;
- governments must be willing to act in favour of conservation in the absence of evidence of negative environmental effects;
- people proposing a change are responsible for demonstrating that the change will not have a negative effect on the environment;
- today's actions are tomorrow's legacy;
- all decisions have a cost. Exercising caution may mean some people must forgo opportunities for recreation or profit.

The precautionary principle should be the guiding rule in determining appropriate action for protecting or restoring ecological integrity in national parks and in daily management. Currently, precautionary approaches to decision-making and management are not supported in Parks Canada. Always taking the side of ecological integrity places ecological integrity squarely in the centre of every management decision, instead of relegating it to an "add-on" that can be easily forgotten or quickly discounted.



Protecting Ecological Integrity *With* National Parks

National parks are essential in maintaining and restoring ecological integrity across much larger landscapes, areas large enough for natural processes and succession to occur and for viable populations of wide-ranging species to be maintained.

National parks exist amid a world full of environmental changes and stresses. National parks are Canada's icons — they are also bellwethers. Detecting ecological stresses inside national parks is a warning of larger and more serious stresses that threaten from the outside.

Throughout this report, we document many examples of national park successes in managing for ecological integrity. There are problems, definitely — but things are not so bad that they cannot be changed. There is tremendous opportunity for innovation, bold new thinking and decisive action.

About This Report

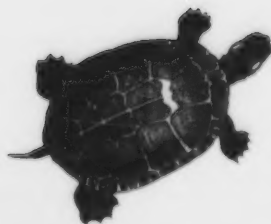
It is important to note that our report contains two volumes. "Volume I: A Call to Action," is an umbrella document that describes the serious threats that beset Canada's national parks, presents an overview of values that may be lost if the threats are not resolved, and identifies roles and key actions for all Canadians and particularly Parks Canada to help resolve the threats. "Volume II: Setting a New Direction for Canada's National Parks" identifies specific issues and problems and makes equally specific recommendations to the Minister and to Parks Canada on how these issues could be addressed.

The chapters that follow elaborate on the Panel's observations, findings and recommendations. The report first examines the corporate culture of Parks Canada, then looks into the planning and science capacity of the organization. External issues follow — working with Aboriginal peoples, establishing new parks and regional integration of national parks in a network of protected areas. Next the report examines "people" issues — interpretation, appropriate use, and the ecological footprint within national parks. Finally, we make recommendations regarding new and existing funding for national parks. Because many of these themes and issues we explore have consequences in more than one field or area, there are links and internal cross-references throughout Volume II.

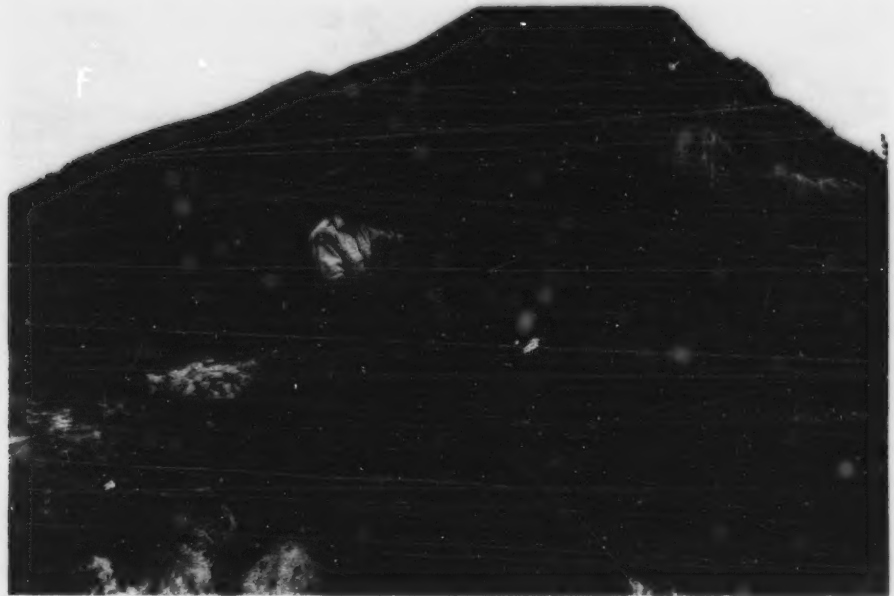
Given the Panel's mandate to address ecological integrity in national parks, this report deals only with those parks established under the National Parks Act, which contains reference to the maintenance of ecological integrity. Our report therefore excludes analysis of marine conservation areas, which fall under a different act; however, we expect many of these concepts and recommendations would apply to marine conservation areas. Consequently, the term "national park" used throughout this report refers only to terrestrial national parks and national park reserves.

While there are branches of the Parks Canada Agency concerned with national historic canals, national historic sites, and other locations or structures, in this report the term "Parks Canada" is used specifically with reference to those departments and branches of the Parks Canada Agency that have jurisdiction over national parks.

Appendix B is a glossary of other terms used in this report.



SECTION B: PARKS CANADA AS AN ORGANIZATION



A warden patrols the backcountry of Banff National Park on horseback. W. Lynch/Parks Canada

CHAPTER 2: TOWARD A CULTURE OF CONSERVATION

To successfully manage national parks with a conservation focus, Parks Canada must establish a clear vision around the primary objective of protecting ecological integrity, and align the whole organization behind this agenda. Shifts in decision-making, staffing, training and relations with employees and park neighbours are needed to accomplish this transformation. Making these shifts, to create an internal culture of conservation, is the single biggest challenge facing Parks Canada.

To make these large shifts, Parks Canada must become a learning culture where evaluation and feedback are welcome and knowledge and expertise are valued. Accomplishing this shift offers significant opportunities for innovation, leadership and bold action so that every decision and action enhances the integrity of the parks.

The new status as an Agency, and requirements of the Parks Canada Agency Act, provide an excellent opportunity for the organization to move forward in a new direction.



Toward a Knowledge-based Organization

The organization that will successfully address the issues outlined throughout our report must have the following characteristics:

- a clear vision and mandate;
- professional leadership for ecological integrity on the Executive Board of Parks Canada;
- employees being seen as core assets; the organization invests in and values employees;
- a genuine partnership with employees that inspires learning, innovation, personal and professional growth and is built on the principles of respect, equity, and empowerment;
- staff who are all empowered to pursue the vision and mandate, and accountable for achieving measurable targets associated with ecological integrity;
- the ability to incorporate knowledge and to enable knowledge to flow freely throughout the organization;
- transparency and openness, where feedback is essential and critical debate is welcomed — the keys to building a knowledge-based organization.

In other words, Parks Canada must become an open, innovative, knowledge-based organization with a consistent focus on ecological integrity.

The Parks Canada Agency Act — An Opportunity for Change

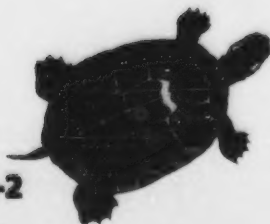
A clearly stated goal for protecting ecological integrity formally arrived in 1988 in the form of a revised National Parks Act. The 1988 legislative commitment was followed by a decade of continuous organizational restructuring and declining financial and human resources, despite the positive though short-term effect of funding associated with Canada's Green Plan.

This was a difficult period for Parks Canada, as the organization responded to many other government agendas. In the last two decades, Parks Canada employees have witnessed a series of rapid organizational transformations from events such as budget cuts, reviews, a series of re-organizations, the moving of Parks Canada from one federal government department to another, and the wide-scale adoption of a "business approach." These changes have not reflected fully the need to involve ecological integrity values in the organization's orientation, leadership, hiring and training, budgeting priorities, and operational management. The organization that emerged had not made the fundamental changes in structure, prioritizing and decision making required to implement the 1998 mandate change.

In 1999, the Act that created the new Parks Canada Agency emphasized the priority for ecological integrity in a broad and strong preamble:

Whereas it is in the national interest:

(a) to protect the nationally significant examples of Canada's natural and cultural heritage in national parks, national historic sites, marine conservation areas and related heritage areas in view of their special role in the lives of Canadians and the fabric of the nation,



(g) to maintain or restore the ecological integrity of national parks

(l) to maintain ecological and commemorative integrity as a prerequisite to the use of national parks and national historic sites, and

(m) to manage visitor use and tourism to ensure both the maintenance of ecological and commemorative integrity and a quality experience in such heritage and natural areas for this and future generations

Parks Canada Agency Act (1999)

Parks Canada can use several statutory requirements in the Agency Act to reposition itself and become an organization with a culture of learning and conservation. Such a shift will help Parks Canada to achieve its mandate and will act as a catalyst for change. National parks can engage all Canadians in a national culture of conservation that works to maintain and restore Canada's ecological integrity, with national parks as core protected areas within a broader sustainable landscape. These shared objectives — an internal repositioning and a catalyst for society — are both in the national interest.

Many of the elements included in the Agency Act, and the early initiatives aimed at revitalization since the Agency's creation, provide opportunities that can help achieve this end. For example, the Agency Act required the creation of a Charter to set out the values and principles of the Agency:

16. (1) The Chief Executive Officer is responsible for establishing a charter for the Agency that sets out the values and principles governing

(a) the provision of services by the Agency to the public; and

(b) the management of the human resources of the Agency.

35. (1) The Chief Executive Officer must, at least every five years, have prepared by a person or body, other than the Agency or any of its employees, a report on the consistency of its

human resources regime with the values and principles that are to govern the management of its human resources.

Parks Canada Agency Act (1999)

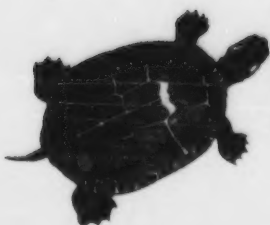
The Charter can be a tool to position conservation as a core value of Parks Canada. Staff at all levels should be invited to participate in the Charter's development, so that the final Charter document is supported by all. If protecting ecological integrity is everyone's job, it follows that each staff member should contribute to repositioning the organization. Soliciting and incorporating input from all staff will help to heal the organization and to create an environment that supports open communication.

A further requirement of the Parks Canada Agency Act, to convene a national round table to advise the Minister, provides an opportunity for Parks Canada to obtain an external review of key programs or policies. This mechanism can be used by Parks Canada to assist in ensuring that key accountability measures are working:

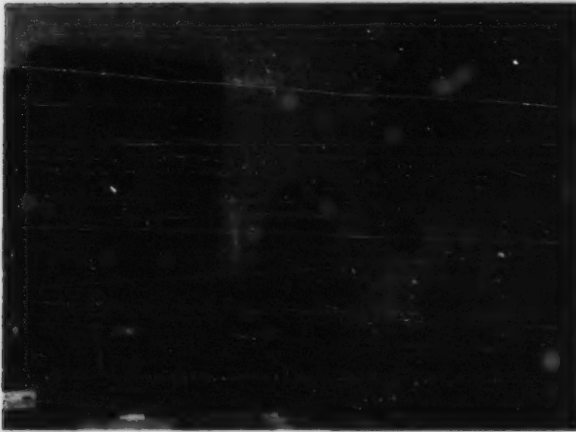
8.1 (1) The Minister shall, at least once every two years, convene a round table of persons interested in matters for which the agency is responsible to advise the Minister on the performance by the Agency of its responsibilities under section 6.

(2) The Minister shall respond within 180 days to any written recommendations submitted during a round table convened under subsection (1).

Parks Canada Agency Act (1999)



Aligning Parks Canada with its Mandate



National park staff must develop a range of competencies to deal with many complex issues.

J. Pleau/Parks Canada

The Panel's comments in this chapter and throughout this report reflect what we heard and observed repeatedly in consultations with staff at all levels of Parks Canada and in presentations from people outside the organization. We are aware that in the recent past many new initiatives and programs have been launched. These present excellent steps toward protecting ecological integrity and aligning Parks Canada behind its mandate. However, we saw that a cultural dichotomy continues to exist in Parks Canada. We heard very clearly that employees are concerned about the state of the parks and deeply

frustrated about the ability of Parks Canada to respond to threats to the ecological integrity of the parks.

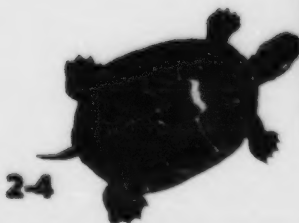
We were told repeatedly that the major hurdles to achieving the mandate can be found within the organization. Our conclusion is that without significant and speedy attention to Parks Canada's organizational culture, the new initiatives, programs and even additional resources will not serve to improve the state of Canada's national parks.

Parks Canada — Managing a Range of Responsibilities

The Parks Canada Agency is charged with managing a diverse range of programs — national parks, national marine conservation areas, heritage rivers, heritage waterways (such as the Trent-Severn Waterway), national historic sites and federal heritage buildings and heritage railway stations. These are very different programs, requiring different skills and management.

Ecological integrity, as a legal requirement, is only found in national parks. This is problematic for Field Unit Superintendents, whose Field Unit can cover a range of program elements. Within the Field Unit, a superintendent is forced to make decisions on allocation. The choice often becomes one of ecological integrity versus historic conservation. As an example, we heard that most ecological research in Cape Breton Highlands National Park was suspended because the water system at Fortress Louisbourg needed to be replaced. This is an inherent structural problem in Parks Canada.

Gros Morne National Park staff at the site of a recent oil spill. P. Wilkinson



Parks Canada has restructured to try to blend these diverse program elements, but "blending" causes its own problems. For example, national historic sites use the term "commemorative integrity" but there is no parallel with ecological integrity. However, the two terms are blended throughout Parks Canada under a third term, "heritage

integrity." The public, the academic community and even the Parks Canada Agency do not understand this term. It is a bureaucratic invention aimed at blending two essentially different concepts, and as an invention, it completely fails.

The diversity of programs makes it difficult for Parks Canada to focus on ecological integrity. It also makes it difficult to decide on expenditure priorities between programs — for example, between national parks and heritage waterways. While there is common ground between programs, the Panel has observed that program blending results in a loss of focus on ecological integrity. If national parks are to be managed for ecological integrity, the management structure of Parks Canada must be aligned to allow this to

happen. Throughout our report, we focus on clear accountabilities, planning structures and budget envelopes. We hope this provides a framework to guide the necessary changes to management structure.

A Dedicated Workforce

While the Panel expected to be awed by the beauty and grandeur of Canada's national parks — and we were — the intense loyalty to these parks demonstrated by Parks Canada staff equally impressed us. Park staff refer to the wonder of the places in their care, the privilege of working on behalf of national parks and Canadians, and the wish to pass on to future generations a living manifestation of the respect that they hold for the natural world.

Parks staff are faced with complex threats to the ecological integrity of national park ecosystems and regularly adjudicate between strong development interests and the ideals of preservation. The issues related to managing parks are sometimes so complex that the ideal of ecological integrity is perceived as only one of many priorities.

In the past few years, parks staff have endured tremendous organizational change yet staff members continue to eagerly seek ways to improve their stewardship of national parks. Many well-intentioned and highly qualified people have been struggling with these important issues long before this Panel was formed. Many have achieved great successes in the face of difficult circumstances, and our report could not possibly document the numerous successes that staff have created by virtue of their determination and vision.

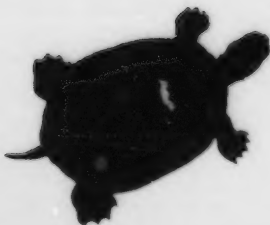
By pointing out the need for a change in Parks Canada's organizational culture, we do not wish to devalue the work and achievements of the hundreds of dedicated employees within the Agency. We do wish to highlight the need to move from a culture of business and recreation to a clear and supportive culture of conservation. We think that ecological integrity is the unifying factor that can direct this learning process which is necessary to a culture of conservation.

There is No Dual Mandate

Prior to the 1988 amendment to the National Parks Act that included ecological integrity, some people felt that Parks Canada had a dual mandate consisting of equal but competing interests: visitor use and keeping the parks unimpaired for future generations. This debate was statutorily ended by the Act's legislative requirements that ecological integrity and resource preservation are the first consideration when managing a park.

However, a proper reading of the National Parks Act of 1930 reveals that even before the 1988 amendment there was no dual mandate. The dedication clause of the National Parks Act of 1930 states that national parks must be made use of in a manner that leaves them unimpaired for future generations. This concept of "unimpaired" was complemented by the 1988 ecological integrity amendment, which made it clear that ecological integrity is the first consideration in managing visitors.

Parks staff must receive a clear signal and acknowledge that there is no dual mandate but rather one single mandate. Parks are places for the protection of ecological integrity and for visitors to experience and enjoy nature in a manner that leaves ecological integrity unimpaired.



"[T]he primary obstacle to maintaining EI [ecological integrity] in Canada's National Parks is the lack of a genuine commitment to that goal... This is a cultural problem... Despite all the promising rhetoric, the fact is that staff in National Parks are restrained by a corporate culture that does not value, indeed actively discourages, advocacy and activism in defense of ecological integrity. It is abundantly clear to anyone who has spent time in the organization, that Parks Canada is basically passive and conservative. The road to advancement is revenue generation, the development and maintenance of facilities, public safety, and other such practical matters. Environmental advocates, I think it's fair to say, are regarded as dreamers, eccentrics, or as troublemakers."

park neighbour,
submission to the Panel

The Language of Business

Currently the language of Parks Canada is oriented toward business and development. The adoption of business language within Parks Canada (terms such as "CEO," "clients," "business plans," "revenue") and resource-harvesting language (terms such as "resource management") while perhaps perceived as only a semantic issue, clashes with the values of a conservation-based organization and symbolizes the importance of the revenue and development themes. We propose, for example, to change "CEO" to "Commissioner" — a title that is more in line with the history of Canada's national parks.

A Law-Policy Disjoint

Currently, the National Parks Act does not refer to ecological integrity except in relation to zoning and visitor use, in sharp contrast to Parks Canada policy that says that ecological integrity takes "precedence in acquiring, managing, and administering heritage places," which is more inclusive. The preamble to the Parks Canada Agency Act more clearly and broadly interprets the principal importance of ecological integrity as it relates to national parks. Legislative preambles are, however, not legally enforceable. This disjoint between the law and the policy leads to confusion among senior managers who are uncertain of their legal footing with regard to advocating for parks in matters that originate inside or outside or park boundaries. The law-policy linkage needs to be strengthened through revisions to the Act.

Some Parks Canada personnel regard ecological integrity as one of the many new winds that have blown across their desks and may blow away again; for others, ecological integrity is perceived as a threat to their jobs. Operationally, ecological integrity has been regarded as one of a number of priorities, rather than as the single unifying concept that provides direction to all national parks programs. (The Panel has heard many times that "ecological integrity is not our only job.") Employees commonly

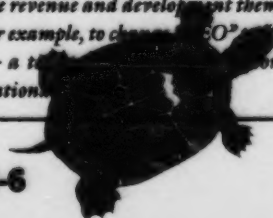
speak of the pendulum that swings between ecological integrity and the more market-oriented side of park management.

We have heard a variety of perspectives regarding ecological integrity, including:

- the perception that Parks Canada has a dual mandate that seeks to achieve an equitable balance between human use of the parks and protection of ecological integrity;
- the belief that ecological integrity is just another goal or task added to the already large list of goals for Parks Canada;
- the concern that recognizing ecological integrity as core of Parks Canada's mandate means "no human use" in national parks;
- the perception that ecological integrity is not "everyone's job" but rather the job of the park ecologists.

We repeatedly observed or heard:

- the perception that while ecological integrity is the core of the official mandate, Parks Canada has in philosophy and practice a mandate of use, revenue generation and compromise concerning such issues as infrastructure maintenance, development and tourism;
- in business planning exercises, items have been re-organized and re-classified to give the appearance that sufficient items and budget dollars are associated with ecological integrity issues;
- the perception that management decisions at the park level, ostensibly in the interest of ecological integrity, are really capital improvements in infrastructure for non-ecological purposes;
- in the experience of park staff, if a sound conservation-oriented proposal threatens revenue generation, particularly in smaller parks, the implications for revenue weigh heavily in the final decision for approval of the proposal.



TransAlta Transformed: Ideas for Shifting Organizational Culture

TransAlta, Canada's largest investor-owned utility, is involved in generation, transmission, and distribution of electricity based in Alberta. More than 85 per cent of the company's electricity is generated from coal combustion; TransAlta is responsible for six per cent of Alberta's total CO₂ emissions and is Canada's single largest producer of CO₂.

Government policy initiatives and the concern about the potential for strict emission limits have motivated TransAlta to transform its corporate mind-set and make a conscious shift toward sustainability. The shift was also based on growing internal awareness of the challenges and opportunities for emission reduction, and a desire to try a voluntary approach to reduction of emissions instead of legislated reductions.

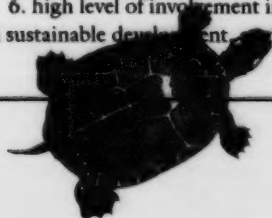
The company undertook a series of internal management changes that provide a model for understanding how to shift organizational culture to a more ecological focus. The shift was accomplished through internal management and incentives, including:

1. establishing a Sustainable Development Group that integrates former Environmental Affairs and Safety departments; headed by a corporate vice-president;
2. strong senior management commitment and monitoring to ensure:
 - review of progress toward emissions reductions and other sustainable development efforts are on the agenda of every Board of Directors meeting, the only non-financial items to be regularly addressed;
 - quarterly review of the action plan, with ongoing measurement and reporting, by senior officers;
 - third party assessments;
3. deliberate commitment to taking on projects that will advance the state of knowledge, practices, and technology regarding options for mitigating greenhouse gas emissions;
4. a deliberate initial and ongoing training program to orient all employees to this new mission, including:
 - a job rotation program to help disseminate the sustainable development approach throughout the company. Engineering graduates slated for positions in Generation, work in Sustainable Development for nine months before they begin their operations-level jobs. This experience and training exposes these new employees to TransAlta's environmental perspectives, which become integrated with their approach to their operations level tasks.
 - all employees received training in the concepts and issues surrounding sustainable development, using a two-day workshop conducted in co-operation with an environmental non-government organization, the Pembina Institute. New employees are now trained using an interactive CD-ROM;
5. employee financial incentives are tied to achievement of greenhouse gas reduction targets and other environmental goals (up to 16 per cent of salary for outstanding reduction improvements);
6. high level of involvement in multi-level organizations and working groups on sustainable development, environment, and climate change issues.

from Thompson (1998)

For each staff category or position throughout Parks Canada, protecting ecological integrity should be "job one." For example, the park wardens and ecologists or Ecosystem Secretariat provide expertise and guidance in ecological issues management. The enforcement staff and resource conservation staff are instrumental in ensuring that park visitors comply with the requirements and laws that protect ecological integrity, from conducting environmental assessments to apprehending poachers. Interpretation and outreach staff should raise awareness and knowledge about the role of the park within the greater ecosystem, and encourage action by park visitors and partners on important management issues. Maintenance and cleaning staff affect ecological integrity directly by their choice and use of environmentally safe cleaning products and indirectly by demonstrating the relationship between environmental awareness and sustainable action (such demonstrations are further sources of interpretive messages).

Numerous corporations have embarked on sweeping re-orientation programs aimed at repositioning the corporation and educating staff regarding a new or revised corporate culture. For example, the Ford Motor Company's "job one" campaign was a clear message to employees and the public. In Canada, TransAlta made a major corporate shift toward sustainable development in the 1990s. These corporations offer models that Parks Canada could consider in making ecological integrity "job one" for all employees.



RECOMMENDATIONS

The overriding objective behind every recommendation in our report is to firmly and unequivocally establish ecological integrity as the core of Parks Canada's mandate. To do so, Parks Canada must transmit the key message to every member of the organization and its partners that:

- ecological integrity is everyone's job;
- ecological integrity is the primary criterion to be used in all decisions;
- the purpose of national parks is to protect ecological integrity.

2-1. To assist in transmitting this message we recommend that the Minister ensure that Bill C-70, or its successor, states clearly and without qualification that protecting ecological integrity is the first priority of national parks and that Parks Canada can achieve this purpose through managing for ecological integrity. (The Panel's suggested wording for various sections of Bill C-70 is contained in Appendix C.)

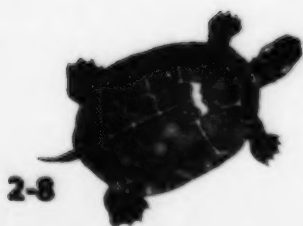
2-2. In accordance with section 16 (1) of the Parks Canada Agency Act, we recommend that within a six-month time frame, Parks Canada initiate the revision of the existing draft Charter that addresses the core values of the organization as they relate to the primary objectives and core mandate. For the National Parks Directorate of the Parks Canada Agency these core values should revolve around the concept of ecological integrity. To ensure that this Charter is understood and adopted by all staff and is reflective of the primary objective, Parks Canada should adopt a bottom-up process for developing the Charter by seeking input from staff at all levels of the organization.

2-3. We recommend that within six months Parks Canada begin a process to move away from the language of business and adopt a language that emphasizes ecological integrity and conservation.

2-4. We recommend that Parks Canada develop a detailed and ongoing program for ecological integrity orientation and training, with initial delivery to be completed within 18 months by all current employees (including contract employees, co-operating associations, partners, and co-operators such as commercial operators within parks). Make this training part of every new employee's orientation package. Conduct a third-party audit of the orientation program after three years to assess the status and future needs for the program.

This basic training program is to be supplemented by more advanced and targeted training programs covering skills needed for maintaining and restoring ecological integrity. For example, a training program should be developed to strengthen the capacity of regional Service Centre staff to participate in regional and provincial/territorial co-operative management efforts by:

- enhancing skills and responsibilities in liaison and co-operative management with provincial and territorial governments, Aboriginal peoples, communities, industry and other public or private agencies; and
- providing increased training in community liaison, negotiation, and communications.



Cultural Resource Management Policy Training

In 1993 Parks Canada began an extensive training program to orient managers, staff, stakeholders and partners to its new Cultural Resource Management Policy. Since the Cultural Resource Management Policy is based on the premise that anyone whose decisions or actions affect cultural resources is involved in cultural resource management — and that includes just about everyone — the target audience for this training has been very broad. The Chief Executive Officer, senior managers, front-line staff and experts in various disciplines have taken the training, as have people involved in historic site and cultural resource management outside Parks Canada.

The training consists of an introduction to the policy, a series of case studies wherein participants apply the policy to decision-making, as well as an overview of how cultural resource management has evolved over the centuries in western and non-western societies.

Capacity to organize and deliver the training has been developed in many parts of the organization so that people who take the training have a sense that this is a national initiative, not a central office exercise. This was critical to developing capacity, to making the policy an integral part of people's work and to developing linkages among those engaged in cultural resource management — including a number of national park wardens with cultural resource management responsibilities. Overall, the training is considered to be very successful and provides another model for training staff in the protection of ecological integrity.

Structure, Staffing and Decision-making

Structure of Parks Canada

The area of the Parks Canada Agency with jurisdiction over national parks (called "Parks Canada" in this report) is currently made up of 32 Field Units and four Service Centres all reporting separately to the Chief Executive Officer (CEO). The Executive Board is made up of the CEO, the Directors General (East and West), the National Office Program Directors General, the Executive Direc-

tors of Québec and the Mountain Parks as well as the Director of Human Resources and the Director of Communications. Appendix D shows an organization chart.

Field Unit boundaries do not correspond to federal or provincial boundaries, nor do they correspond to ecological boundaries. Field Units are of varying size and spatial area and are made up of a combination of national parks(s), national historic site(s) and national historic canal(s). Each Field Unit is under the responsibility of a Field Unit Superintendent who is accountable for program delivery. Depending on size and location, some parks also have a Park Superintendent who is based on or near the site. The Field Unit Superintendent may be based in an adjacent park in the Field Unit or in another location.

Staff in St. Lawrence Islands National Park inspecting a black rat snake. Parks Canada



The Effects of "Flattening"

Parks Canada's structure was "flattened" greatly in recent re-organizations; middle management layers were removed and the official reporting relationships between Field Unit Superintendents and the Chief Executive Officer were simplified. We have observed that a variety of problems arise from this revised structure, particularly around the demands placed on Field Unit Superintendents. These problems have implications for meeting the ecological integrity objectives.

Field Unit Superintendents are asked to manage a variety of parks or sites of different importance, condition, scope or substance. In some units the combination of historic and natural sites presents a significant challenge. Some Field Unit Superintendents manage a large number of historic sites with complicated partnership arrangements or large funding commitments. The main consequence is that the Field Unit Superintendent may find it difficult to provide important substantive direction and leadership in the numerous specialties requiring manage-

ment in these diverse responsibilities. As a result, the Field Unit Superintendent is often short of time, under-staffed, and constantly "putting out fires" on a range of issues from new uniforms for park staff to provincial negotiations over boundaries or management practices.

The long list of the Field Unit Superintendents' responsibilities and the lack of structured professional support has made it difficult for Field Unit Superintendents to provide adequate attention and guidance on ecological integrity.

Ecological Integrity in Decision-making and Staffing

A consistent theme associated with organizational culture and ecological integrity is the lack of a role for ecological integrity at the various decision-making tables. We consistently observed or heard that:

- the voice of ecological integrity is largely absent at all management decision-making levels because ecological integrity is neither perceived as "everyone's job," nor is there any one person or group formally accountable for ecological integrity;
- expertise in understanding and valuing ecological integrity is inadequate at most decision-making levels within the organization. Those with specific conservation or scientific expertise typically are not part of formal decision-making structures;
- the cumulative effect of small incremental decisions is not well understood or analyzed in decision-making processes;
- precautionary approaches to decision-making and management are not supported and employees have had the burden of proof reversed upon them — to show how a given proposed action or development would do ecological harm.

With regard to staffing and advancement of staff within Parks Canada, we have observed that the ecological function and the ecological ethic are compartmentalized within the organization, effecting in a sense a "green ceiling." There is a need for management to support and foster ecological integrity initiatives, allowing those who wish to remain in non-management roles to be effective in protecting ecological integrity. We heard or observed that:

Georgian Bay Islands Directed Team Approach

At Georgian Bay Islands National Park — one of Canada's smallest parks, with comparatively few resources and arguably some of the greatest threats — the Panel met a team of park employees who had adopted an alternative management model to help them co-ordinate their individual and collective roles in park management. In 1993, park management set aside traditional management frameworks and empowered all employees to be accountable for their actions. Their vision was defined as, "A shared commitment to the preservation and commemoration of our natural environment and cultural resources within the Greater Georgian Bay Ecosystem."

Self-directed team structures were introduced along with an associated training program. The intent was that self-directed teams were to create an environment in which continuous learning was valued and supported.



- those with specific ecosystem-based management or science training rarely move to upper management;
- hiring or transfer of management staff from non-resource management backgrounds, who lack an expressed conservation ethic, has further developed this apparent green ceiling and created a barrier to the protection of ecological integrity at the ground level;
- there is a perception that educational and cultural barriers divide management from park staff and the science associated with conservation and ecological integrity;
- an employee's environmental commitment is seen as being outside of the job, radical or reactionary;
- employees with a strong conservation ethic feel an lack of congruency between their personal ethics and the ethics of the organization.

An optimal structure is one that grants ecological integrity a central role in every management decision, provides a depth of understanding and experience to issues involving ecological integrity, ensures that it is integrated within each

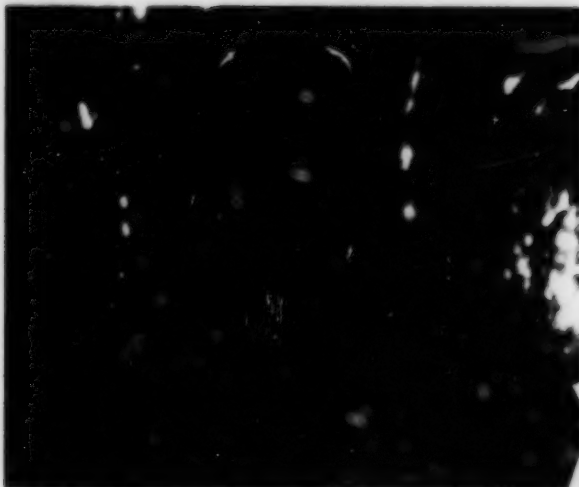
department, and co-ordinates tasks and involves all staff in achieving ecological integrity. If ecological integrity is everyone's job and individuals skilled in ecological protection are hired and promoted within Parks Canada, this ideal can be realized.

An organization that fully embraces ecosystem management and ecological integrity will require a range of new expertise. The following list of areas of required expertise comes from the Panel's observations:

- managers with experience and training in disciplines associated with ecological integrity;
- senior science positions from a range of disciplines;
- individuals with the capacity to manage the process of science from the generation of the research agenda through to dissemination of results;
- social science expertise in human use management;
- expertise in subsistence/resource harvesting activities in particular those associated with regulatory mechanisms;
- expertise in interpretation;
- expertise in data management, especially at the park level;
- expertise in working with naturalized (traditional ecological) knowledge and with mechanisms for integrating such knowledge into decision-making;
- skills and expertise in regional land use planning.

In addition, the Parks Canada workforce is aging; in 1997, approximately 60 per cent of the workforce was 40 or over, which presents the possibility of large numbers of staff retiring in a relatively short period of time. The need to hire many new staff will also offer the opportunity to improve the skills profile of Parks Canada.

National parks staff often refer to their affinity for nature, their love of wild places. J. Pleau/Parks Canada



RECOMMENDATIONS

We do not feel that Parks Canada's existing structure serves ecological integrity well. We heard from park staff that they feel that the current organization does not support their fundamental beliefs about the importance of ecological integrity and that while tired of change, they would welcome changes that would move Parks Canada toward achieving its core purpose.

2-5. We recommend that Parks Canada examine and evaluate the existing structure and its implications for achieving ecological integrity requirements for national parks. In any structural reorganization we suggest the following guiding criteria be used to achieving the objectives required of ecological integrity:

- ensure that ecological integrity is central to everyone's job;
- ensure that Parks Canada is represented in regions, provinces and territories by senior parks representatives who can speak for the Parks Canada Agency in establishing agreements, partnerships, and policies in any given area;
- provide these senior representatives with the appropriate authority and professional staff that go along with the responsibility to accomplish their tasks;
- provide parks with enough staff to carry out their responsibility but at the same time ensure a co-ordination of those specialists that could work better as teams and provide leading-edge expertise to parks;
- ensure that an adequate focus in the Field Unit Superintendent's responsibilities and time is devoted to national parks;

- establish networks in discipline areas (similar to the Fire Management group) to parks;
- provide Service Centres with a clear definition of roles, responsibilities and authorities in specific fields;
- provide for clear accountability and recognition mechanisms for achieving ecological integrity.

The following recommendations arise from the need to redress existing staffing to provide a strong base for ecological integrity protection. As ecological integrity becomes central to the operations and decisions of Parks Canada, these actions may be reviewed and phased out.

2-6. We recommend that Parks Canada take steps associated with staffing and training to ensure that protecting ecological integrity becomes the primary concern of every person in the organization. Such steps include:

- use a demonstrated commitment to the mandate of protecting ecological integrity as a criterion for staffing throughout the organization;
- ensure that the majority of management positions are filled with persons skilled and trained in ecological integrity. Understanding of and experience with managing ecological integrity should be among the selection criteria for all senior managers. Senior management should also have a demonstrated prior commitment for the values of ecological integrity and national parks. In the short term, existing staffing should be examined, and training and transition strategies developed;

"I am not held accountable for ecological integrity. It never comes up."

Field Unit Superintendent



- create the position of National Science Advisor or Director General of Ecological Integrity. This position should be parallel to the position of Director General of National Parks and should report directly to the Chief Executive Officer. The person selected for the position should have proven expertise in ecosystem science and protected areas strategies, and would act as the scientific advisor to the Chief Executive Officer, be a member of the Executive Board, co-ordinate the overall national park science strategy, and manage a formal program of external outreach to universities and research agencies. We suggest the following criteria for this position:
 - at least at Master's-level degree in a field related to ecological integrity, with an understanding of relevant social science areas;
 - experience in protected areas management and research;
 - national reputation in their field (in order to work credibly with senior science representatives from other government departments and to develop partnerships with universities and other researchers);
 - an understanding and appreciation of naturalized knowledge systems;
 - an understanding and appreciation of adaptive management;
 - the ability to develop a research agenda, to provide mechanisms to incorporate knowledge into decision-making.
- ensure there is adequate science advice at all decision-making forums in the organization, including park management teams and scientific advisors to the Directors General East and West and Executive Directors of Québec and the Mountain Parks.

Accountability

Parks Canada is accountable for the application of, and adherence to, these [Guiding Principles and Operational Policies]. This accountability will be formally reviewed through State of the Parks reporting.

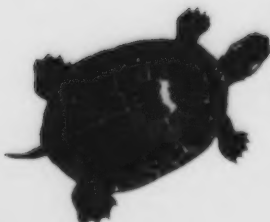
Parks Canada, Guiding Principles and Operational Policies (1994)

Accountability can be defined as the act of being held both responsible and answerable for a given result.

At the national level, the State of the Parks Report is the accountability mechanism used to evaluate Parks Canada's achievements. The State of the Parks Report is prepared periodically and tabled in Parliament but not reviewed by committee. At the park level, the key accountability mechanisms are the Park Management Plan

and the Business (Implementation) Plan.

The Panel examined the extent to which these or other accountability mechanisms were used to hold Field Unit and Park Superintendents (and other park staff) personally accountable for ecological integrity. We heard and observed that while senior managers are responsible for the ecological integrity priority, they are not held accountable for ecological integrity. No clear feedback mechanisms are associated with ecological integrity. For employees at all levels of the organization, the link between their jobs or responsibilities and ecological integrity is seldom apparent. This is in sharp contrast to accountability for other organizational objectives such as revenue generation, for which employees told us they were held accountable.



We heard or observed that:

- there is no direct individual accountability for ecological integrity (for example in performance evaluations at the Field Unit Superintendent level);
- ecological integrity is only one of a long list of accountabilities within Business Plans and it is often included as only a minor element;

U.S. National Park Service Awards for Excellence in Natural Resource Stewardship

The U. S. National Park Service makes five awards each year to government employees who have provided outstanding accomplishments in natural resource stewardship activities, management or research. The awards foster creative and innovative practices and projects.

The awards are:

- The Director's Award for Natural Resource Management;
- The Director's Award for Natural Resource Research;
- The Director's Award for Superintendent of the Year for Natural Resource Stewardship;
- The Resource Manager in a Small Park Award;
- The Excellence in Natural Resource Stewardship through Maintenance Award.

The National Park Service presents these awards at appropriate peer gatherings. In recent years, the Service has presented the awards to resource management and research personnel at scientific or conservation society meetings.

- Parks Canada often "lumps" ecological integrity and commemorative integrity together in planning, management and other activities;
- accountability for ecological integrity within professional and technical service areas (and possibly within the Executive) appears to be absent;
- State of the Parks Reports, while an excellent beginning to public reporting, are not true accountability documents and lack rigour. (Chapters 3 and 6 contain further discussion regarding State of the Parks Reports.)

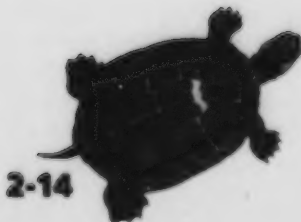
Accountability for ecological integrity is a subject that is addressed in all chapters of this report. Recommendations regarding accountability are summarized below but are developed in more detail in the following chapters. We believe that the adaptive management process offers a viable mechanism to foster accountability at the same time as facilitating actions that support ecological integrity, with feedback and evaluation as integral parts of the process.

RECOMMENDATION

2-7. We recommend that Parks Canada improve accountability mechanisms within the organization to ensure progress toward the goal of protecting ecological integrity. Mechanisms include:

- revise and clarify accountability mechanisms at the park level. Specifically, we recommend that Parks Canada adopt new or revised accountability mechanisms such as park-level State of the Park Reports, budgeting and accounting principles, transparent decision-making processes, and other ideas developed in later sections of this report:

- use regular reporting mechanisms, evaluations, bonuses, raises, and awards to make all staff accountable for ecological integrity. Clarify the role and responsibility of all staff at all levels of the organization for implementation of ecological integrity, provide them with adequate professional support and hold them accountable for measurable results. Within a one-year time frame, institute an award program for excellence in work by park staff and partners towards ecological integrity.



Politics and Parks Canada

Issues related to political input occur at two levels: actual political involvement in decision-making within Parks Canada; and "filtering."

Parks Canada is a public agency reporting to a Minister of the Crown. Policy direction comes from Parliament, from

the Minister and from the federal government. Since 1988, policy direction for Parks Canada has been clear and consistent, establishing the primacy of protecting ecological integrity in national parks. The current Minister of Canadian Heritage has taken a number of decisive actions consistent with protecting ecological integrity, such as the implementation of many recommendations from the Banff-Bow Valley Study. The Parks Canada Agency is also a public

agency in the sense that its actions affect the public and the "affected public" may use its recourse to political means to influence decisions.

Political Involvement in Decision-making

The Parks Canada Agency and the national parks under its jurisdiction are subject to direct involvement of politicians in activities ranging from new park establishment through to specific proposals within parks. The impact of political decisions on parks and on park management is significant as it signals interest and direction from political levels. In instances where political decisions are made that affect a national park or parks, clear explanations of decisions, and the rationale for these decisions, is needed in order to clarify decisions to park staff, create support and maintain direction.

"I would like to see Parks Canada find the courage to cast itself in a more active, advocacy role in promoting ecological integrity... Of course, it's nice to get along with everybody... But there is no point in 'getting along' if the ecological integrity of parks is going to suffer as a consequence. I don't mean to imply that Parks Canada needs to become abrasive or belligerent. I think the organization can be courteous and sympathetic to all, and yet be unswerving, zealous, in pursuit of ecological integrity. It is not good enough for Parks Canada to assume a passive caretaker role. Our national parks desperately need an organization that's willing to serve as a forceful and energetic advocate for the values of Canadian Heritage."

park neighbour, submission to the Panel

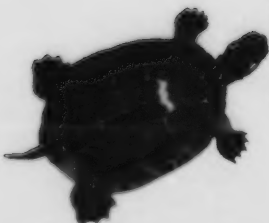
Filtering:

The Second-guessing Syndrome

"Filtering" occurs when decisions are made in anticipation of political concerns, or when information is edited or otherwise censored because of perceived political sensitivity. In other words, "the boss isn't going to like this" becomes the paramount concern when actions are taken or information is passed on. This concern eclipses directness and openness. In so doing, staff at all levels, including senior management, deny their superiors the opportunity to evaluate all available information and make informed decisions.

The Panel has observed and heard that:

- filtering results in decisions or actions that are perceived to be contrary to the intent of the National Parks Act, policy or management plans;
- decisions are stalled as managers wait for what they perceive as "the right time";
- information necessary for sound decision-making on the basis of protecting ecological integrity is filtered out of the information that goes up the chain of decision-making;
- despite the existence of such management tools as park zoning policies and environmental assessment requirements, park managers find it difficult to clearly say "no" to development or specific uses that threaten ecological integrity or to clearly change practices for fear of making an unpopular decision. This indecision results in tacit agreement and encourages future similar uses;
- a syndrome of compromise decisions that have significant cumulative negative impacts on ecological integrity has developed. Under this situation, park management becomes "the politics of compromise";



- the difficult assessment of national imperatives contrasted with local interests is left without the proper policy base for managers to make appropriate decisions.

In the Panel's opinion, a clear statement that reinforces protection of ecological integrity as the first priority of Parks Canada's mandate will stimulate clear

and consistent decisions and provide guidance to staff, obviating "filtering" as a widespread practice at all levels of Parks Canada. Active discouragement of the practice will engender confidence among staff and allow free and open exchange of information and ideas. We encourage the Minister to request that Parks Canada staff "tell it like it is" as a matter of policy.

RECOMMENDATION

2-8. At all levels of decision making, we recommend that Parks Canada adopt a transparent and open decision-making process including formal records of

decision and a strategy to communicate the rationale for decisions.

Internal Debate and External Advocacy

Issues regarding ecosystem-based management are complex and fraught with uncertainty. Dialogue and debate are key elements to addressing these challenges. However, we have found that the climate within Parks Canada is not conducive to either internal debate or public advocacy. The Panel defines advocacy as voicing, in a respectful but active way, the values and concerns of national parks.

It has always been difficult to judge the line that separates the appropriate behaviour of a public official from the actions of the same person as a private citizen. In advocating externally about the role and mandate of Parks Canada, employees should not have to become private persons in order to freely state their views. The Panel notes that where other federal government departments and public institutions have a clear sense of their mandate and their purpose, their officials have no hesitation in promoting that mandate. For example, officials of Natural Resources Canada and Industry Canada, do not hesitate to support the industries for

which they are responsible both within government and in public.

Specifically, we consistently heard that:

- there is no support, mechanism or forum for internal debate or critique — a necessity in a science-based organization — and there is informal suppression of internal debate regarding ecological integrity;
- challenging a management decision on the basis of protecting ecological integrity is perceived as "career threatening";
- re-organization and budget cuts have severed communications and support networks, exacerbating the feeling of isolation;
- employees feel that to do their jobs and protect ecological integrity they must leak material to non-governmental organizations.



With regard to external advocacy we have heard that:

- while there are no formal barriers to external advocacy there are implicit barriers. Some senior staff and management are very uncomfortable with the notion of advocacy;
- while some parks have taken an active role in voicing the park's values and concerns to surrounding neighbours, other parks have either remained silent in the face of critical boundary issues or taken a passive approach. The credibility of Parks Canada as a voice for conservation is perceived to be threatened when Parks Canada is passive in voicing concerns;
- the lack of external advocacy is an area where employees find significant disconnection with the values of Parks Canada;
- Parks Canada staff perceive that land managers adjacent to national parks do not welcome Parks Canada advocacy for park values and concerns, particularly when this involves provincial counterparts;

- employees perceive that advocating even slightly controversial national park concerns outside park boundaries is also "career threatening" and such advocacy is strongly discouraged by senior managers.

This reluctance to speak out for park values is a widespread response to large developments, both inside and adjacent to parks, and to ongoing surrounding land use issues. Although there are significant notable exceptions, the norm is an organization that is reluctant to voice concerns regarding how surrounding land uses may threaten park values.

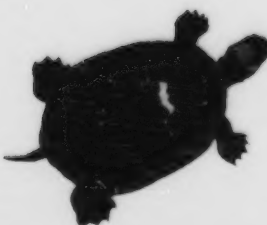
We think there is room between the current situation of near-silence and a situation of unbridled internal critique and external advocacy. That Parks Canada's employees are often its most severe critics is a healthy situation — internal debate and criticism is the best way for any organization to learn and grow. But that employees feel obliged to raise their criticisms obliquely rather than openly within the organization shows a lack of trust which must be addressed. An institution that encourages the competent expression of values and mandates will be stronger for demonstrating that support.

RECOMMENDATION

2-9. We recommend that Parks Canada open dialogue about the management and maintenance of ecological integrity by:

- giving staff guidelines, principles and tools that enable Parks Canada to open the dialogue on ecological integrity;
- allowing alternate views to be expressed in a professional manner and respected, as evidence of positive organizational change;

- making management accountable for creating a climate of openness, critique and internal advocacy;
- adopting the adaptive management process to facilitate this free exchange of opinions;
- affirming and communicating the recognition that advocacy on issues that affect parks is necessary and expected;
- clearly communicating corresponding policy direction and guidelines to all park staff.





SECTION C: A LEARNING ORGANIZATION

CHAPTER 3:

PLANNING FOR ECOLOGICAL INTEGRITY

Despite a great deal of planning activity, and the fact that policies to enact management for ecological integrity are clearly in place, Parks Canada is still grappling with how to translate policies into plans, how to translate plans into action, and how to evaluate the consequences of those actions to adapt to constantly-changing circumstances. Parks Canada must restructure planning in a way that puts ecological integrity at the core of the whole process. The Panel recommends adaptive management — a formal process for continually improving management policies and practices by learning from their outcomes — as a means for Parks Canada to best

integrate learning into its planning processes, to continually improve management for the protection of ecological integrity.

Parks Canada requires:

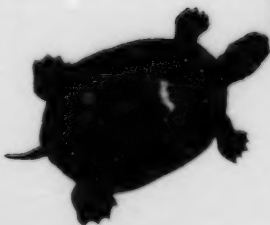
- fundamentally new planning documents at park- and national-level scales;
- revisions to consensus planning, zoning and environmental assessment procedures to support ecological integrity objectives;
- greater emphasis on monitoring, evaluation and reporting as integral components of planning cycles.

Learning through Adaptive Management

Effective planning is needed
to maintain ecological
integrity in national parks.
P. St.-Jacques/Parks Canada



The need for Parks Canada to employ adaptive management is a major theme throughout our report. In Chapter 2, we reported that Parks Canada must value and encourage learning and adaptation. This chapter addresses how best to adapt planning to the need to learn, and to incorporate multi-stakeholder values, by embracing adaptive management as a framework for the management of national parks — from the planning required to manage individual parks in regional ecosystems to the management of parks as components of greater protected areas networks. Subsequent chapters elaborate on the need to address the chronic shortage of natural and social science and planning capacity (Chapter 4), the need to learn while actively managing (Chapter 5) and on inventory and monitoring as critical tools for learning (Chapter 6). In each of these chapters, we recommend adaptive management as a means of moving forward while improving the protection of ecological integrity.



Adaptive Management: Policy as Hypothesis, Management by Experiment

Learning is not a haphazard by-product of mistakes in policy or management. In contrast to the usual system of rewards and advancement, which tends to discourage admission of error, by using adaptive management managers and decision-makers view unanticipated outcomes as opportunities to learn, and accept learning as an integral and valued part of the management process. Learning while doing accelerates progress toward improved policies and management.

Cyclic models for improvement through feedback are well established in other fields — business processes such as total quality management, and science procedures such as hypothesis testing (Figure 3-1).

Adaptive management requires that social and other values are explicitly incorporated. Thus, the process provides a means to overcome confrontational gridlock and facilitates regional co-operation as advocated in Chapters 7, 8 and 9. It demands that individuals and organizations look beyond their narrow perspectives to broader, unifying goals.

Parks Canada has had a well-defined, broad policy objective that is perfect for orienting the organization and catalyzing implementation of adaptive management: the protection and restoration of ecological integrity.

The fastest progress toward policy goals is realized when management actions are planned and undertaken as controlled and replicated experiments that afford greater certainty about consequences of management actions. Programs such as fire restoration, infrastructure replacement, and control of hyperabundant species are ideal for active adaptive management. Where experimentation is impractical, such as road construction or other major developments that cannot be "undone" once completed, Parks Canada can still gain information and learn from doing by analyzing existing data, modelling, and selecting the best of several alternatives. This approach is called passive adaptive management. In both cases, monitoring, evaluation and reporting follow the decision, and learning occurs because outcomes are compared to initial expectations.

A generalized model of adaptive management as a cyclic process. Knowledge that derives from monitoring and evaluation of management actions is used to make adjustments to policies and ongoing management. Feedback accelerates progress toward policy goals, such as maintenance and restoration of ecological integrity.

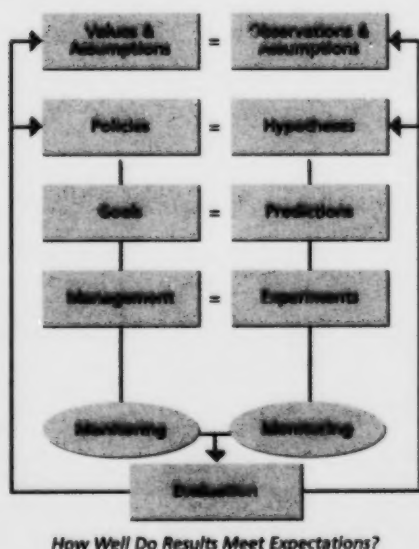
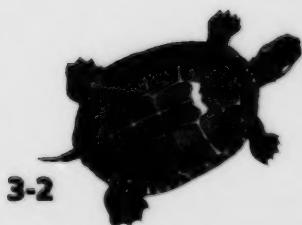


Figure 3-1. Policy as Hypothesis, Management by Experiment

Learning is facilitated by feedback obtained from monitoring and evaluation. Adjustments, in light of knowledge gained through experience, are critical components of the process. Without adequate investment in feedback, learning about the consequences of policies or management actions is slow, change is cumbersome and can come too late. The result is a situation where staff simply "muddle through."

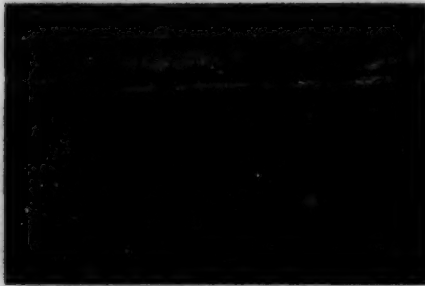


A National Park Vision: Vuntut National Park

The vision for Vuntut National Parks acknowledges social, cultural and ecological values and serves as a good starting point for adaptive management.

In 15 to 20 years, Vuntut National Park will be:

- a protected area where the internationally significant Old Crow Flats area (a Ramsar site) is healthy, as demonstrated by tens of thousands of waterfowl, migratory moose populations and normally fluctuating muskrat populations.
 - a protected area where the health of wildlife populations, such as the Porcupine caribou herd, are the same or better than today, and natural wildlife movement patterns continue.
 - a protected area with the same high level of ecological integrity that is has today, where natural processes govern change.
 - a protected area where traditional knowledge and scientific knowledge are given full and fair consideration for the protection, management and operation of the park. Research and monitoring are ongoing, and the results are used to alert park managers to environmental changes caused locally or globally, leading to appropriate actions.
 - a protected area that is managed co-operatively and effectively with the Vuntut Gwitchin, and whose management is regionally integrated with Old Crow Flats Special Management Area, Ivvavik National Park, the Arctic National Wildlife Refuge, Vuntut Gwitchin Settlement Lands as well as the chain of protected areas across northern Yukon and northern Alaska.
 - a protected area where the Vuntut Gwitchin continue a subsistence lifestyle and maintain a spiritual connection to the land. Vuntut Gwitchin Elders are on the land, educating youth so that respectful stewardship of the land will continue.
 - a protected area where visitors are welcomed by Parks Canada and the Vuntut Gwitchin, and opportunities are provided to learn about the land, the people and Vuntut Gwitchin culture. The health of the land, wildlife and Gwitchin lifestyle have priority over visitor opportunities.
-



Vuntut National Park.
Ian MacNeil/Parks Canada

The Current Planning Framework

General Observations

The Panel made observations and heard evidence that apply generally to planning and reporting activities, regardless of level or who is involved with the planning processes. We address these first, and then focus on issues more specific to park-level planning. Finally, we use the adaptive management framework we recommend for revised planning processes at the park level, to sketch the components for an analogous planning system at the national scale.

Parks Canada currently divides planning activities into three tiers: strategic, implementation and work planning

(Figure 3-2). There are many types of plans in each tier, but only a few main plans provide for direct accountability. These plans are:

- at the strategic tier, the five-year Park Management Plan, which is the key accountability tool between the park, the government and the public;
- at the implementation tier, the three-year Business Plan, which combines planning for national historic sites with national parks at the level of Field Units and is the key accountability tool between Field Unit Superintendents and the Chief Executive Officer of Parks Canada;



Perhaps no phase of management planning has received as little attention as the evaluation of the results of the planning program efforts.

Parks Canada, Guide to Management Planning (1994)
p. 12

Parks Canada ... has no formal process for monitoring the implementation of management plans or reviewing previous initiatives.

Auditor General (1996) pp.
31-39

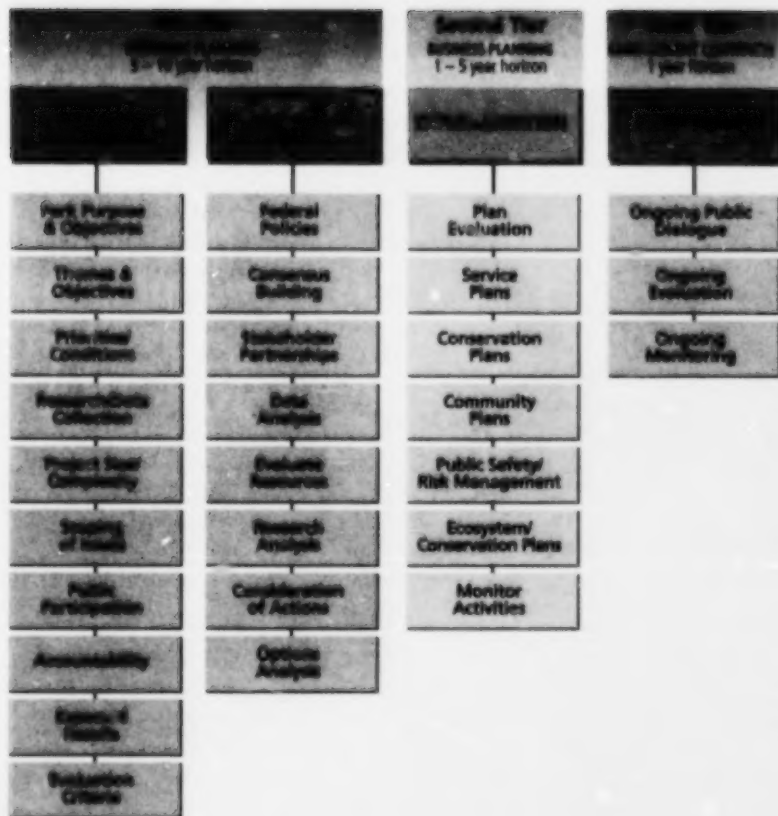


Figure 3-2 Current Planning Framework

A reproduction of a figure in "Guide to Management Planning" (Parks Canada 1994), illustrating the current three-tiered, park-level planning system. Each tier comprises many different types of plans that do not necessarily link to each other, nor to others in other tiers. Neither is there any indication how the results of evaluation and monitoring should feedback and result in adjustments to policy and management.

- at the work planning tier, individual plans that are usually prepared annually and elaborate methods to carry out projects listed in the strategic and/or implementation plans.

In contrast to the cyclic model of adaptive management, the Panel observed that planning in Parks Canada is linear, top-down, and has no obvious feedback loops to incorporate learning (Figure 3-2). Planning appears as a dizzying mix of strategic and tactical planning

activities, at a variety of spatial and temporal scales, without clear linkages between policy and strategic plans, nor between strategic and implementation plans. Evaluation and reporting (Figure 3-1) is the forgotten tier. Evaluation and reporting are restricted to the State of the Parks Report (Recommendation 6-9). The process is further confused by the retention of old names for new documents, old documents that linger despite being superseded by newer documents, and so forth.



Accumulation of "Secondary" Planning Documents

A number of documents evolved over the past decade, ostensibly to bridge between policy and strategic-level plans: Ecosystem Conservation Plans, Ecological Integrity Statements (and documents describing the attendant processes to develop these products) and the State of the Parks Report. However, ecological integrity is still sidelined from the main accountability tools, which are the Park Management Plans, Business Plans and Corporate Plans.

In addition, it is difficult to find explicit links between policy and the main planning documents, or how the main plan-

ning documents link to each other. It is also difficult to discover how the "first job" of maintaining and restoring ecological integrity carries through from law to policy, from policy to implementation, or anything in the way of explicit feedback to improve policy and management for ecological

integrity. Thus, at present, the Minister and the Chief Executive Officer are only indirectly accountable for delivering on the legal and policy commitments to ecological integrity.

Too Much Planning, Too Little "Doing"

The Panel heard and observed that current planning is ponderous and time-consuming, and that Parks Canada's effectiveness in implementing and monitoring its plans is inconsistent. The system is breaking under its own weight. The Panel further heard that senior management has become consumed by process issues, leaving little time to focus on the substantive issue of ecological integrity. The Panel also heard that some planning occurs in isolation, leaving the impression that much of it goes on for its own sake, rather than being focused on the central task of planning for the maintenance and restoration of ecological integrity.

The number of experienced planners in Parks Canada has been reduced. As a result, planning cannot be carried out in a timely fashion; many plans are out of date. Further, increased regional integration, co-operation and consultation (as advocated in Chapters 7, 8 and 9) will mean that planners' workloads will increase as they are called on to interact with other jurisdictions. Numerous annual work plans, and required input to many other planning and reporting activities by resource management, interpretation and other staff, take too much time away from plan implementation.

"We have become known as 'Plans Canada'."

Parks Canada resources management staff

"We have produced 15 plans in 18 months!"

Field Unit Superintendent

"If Parks Canada was directing target practice, the command would be: 'Ready, aim....aim....aim...'."

Parks Canada resources management staff



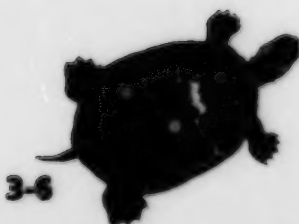
Changing the Current Planning Framework

We had the opportunity to review Parks Canada's draft "Guide to Management Planning" (September 1999) and recommendations from the National Management Planning Conference (October 1999); we were encouraged to see that Parks Canada has started to address some of the concerns identified by the Panel, such as:

- that management plans need to be more strategic by spelling out and incorporating a clear vision for the greater protected areas networks and regional ecosystems of which national parks are a part (Chapters 8 and 9), the current state of ecological integrity (Chapters 4, 5 and 6), and the goals and means to maintain and restore ecological integrity by establishing measurable objectives for verifiable indicators (Chapters 6);
- the need to reduce planning products to the fewest documents and reports possible, each with one clear purpose and explicitly linked with each other (as recommended in this chapter);
- inclusion of suggested tools and techniques for consultation, and a call for more effective consultation with the public and other agencies (Chapters 2, 7, 8 and 9);
- better co-ordination and early involvement by the National Office and an enhanced role for regional co-ordination through Service Centres (Chapters 2 and 4);
- increased resources (Chapter 13) to nurture a competent planning core and/or to cover shortfalls for assignments, contracts and interchange agreements; and
- addressing ecological integrity issues at national historic sites, national historic canals and other sites.

However, we are concerned that Parks Canada has not yet addressed that:

- there is no explicit reference to adaptive management and mandatory monitoring and evaluation;
- there is little in the way of explicit ideas for consolidating and streamlining planning activity;
- there are still too many different, incongruent evaluation and reporting deadlines (annual and two-, three-, and five-year cycles) that are confusing, cause overlap among planning, management and reporting activities that ought to follow each other in an orderly cycle, and that represent investments of staff time better spent in implementation;
- staff time would be better spent in implementation than in producing a myriad of planning documents; and
- important planning tools such as zoning, wilderness designation and environmental assessment appear as afterthoughts in current plans.



RECOMMENDATIONS

3-1. We recommend that Parks Canada adopt an adaptive management approach (as conceptualized in Figure 3-3) at both national- and park-level scales of planning and management, such that:

- the planning framework at each scale is consolidated around the main accountability tools at each tier (a strategic plan, an implementation plan and an evaluation report) and documents peripheral to this core are phased out;
- the planning system explicitly links the various components in the framework, both within and between national and park scales;
- the planning system makes increased and effective use of regional Service Centres to co-ordinate between national- and park-scale planning, management, and reporting so that ecological integrity objectives at both scales are mutually supportive. This will relieve Field Units of some of the present burden (Chapter 2) imposed by too much planning that leaves insufficient time for plan implementation, and will facilitate regional consultation and co-ordination (Chapters 7, 8, and 9);
- the planning framework provides for feedback, through monitoring and evaluation, about the adequacy of management practices for achieving ecological integrity objectives.

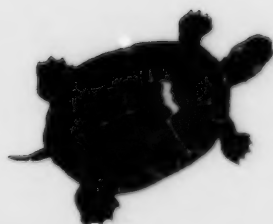
3-2. We recommend that Parks Canada simplify the parks planning process, similar to Figure 3-3, to:

- ensure that the legal requirement to maintain and enhance ecological integrity is carried down the entire process as the overriding priority;
- improve the efficiency of planning activities and thus free staff time for implementation;
- provide for fewer, but analogous, strategic and implementation planning and reporting cycles, with complementary, commensurate time lines, at each of national and park (regional ecosystem) scales.

3-3. We recommend that the Park Management Plan become a fundamentally new document, such that:

- it incorporates an Ecological Integrity Statement and the strategic aspects of Ecosystem Conservation Plans;
- all other planning is thus focused by the requirement to manage the ecosystem for ecological integrity first;
- the management planning process becomes, de facto, an ecosystem conservation planning process and its product, the Park Management Plan becomes, de facto, an ecosystem conservation plan;
- conservation scientists play a fundamental role on the management planning team (Recommendation 8-7).

3-4. We recommend that, with respect to strategic planning at the national level, Parks Canada establish a new strategic plan for managing the national system of parks for ecological integrity (Recommendation 8-2).



3-5. We recommend that Parks Canada establish formal, mandatory monitoring and evaluation processes (Recommendation 6-8) at the scale of individual parks prior to each new cycle of park management planning, by requiring a report from each park about the state of ecological integrity in the park and the surrounding greater ecosystem, to:

- track progress toward the maintenance or restoration of ecological integrity in parks and in the greater ecosystems that surround them;

- assess the effectiveness of specific management actions toward achieving the vision, objectives and goals in parks and in greater ecosystems;
- monitor the implementation of new strategic Park Management Plans for ensuring the maintenance of ecological integrity;
- indicate the proposed direction and management actions to respond to the present states of ecological integrity in parks and in greater ecosystems.

This report should undergo a third-party audit.

3-6. We recommend increased funding for renewing a planning core within Parks Canada (Recommendations 4-1 and 13-2) that is:

- competent in conservation science as well as planning for carrying out Parks Canada's mandate to maintain and enhance ecological integrity in greater park ecosystems;
- competent to meet the greater needs of enhanced consultation with the public and other agencies as demanded by ecosystem-based management.

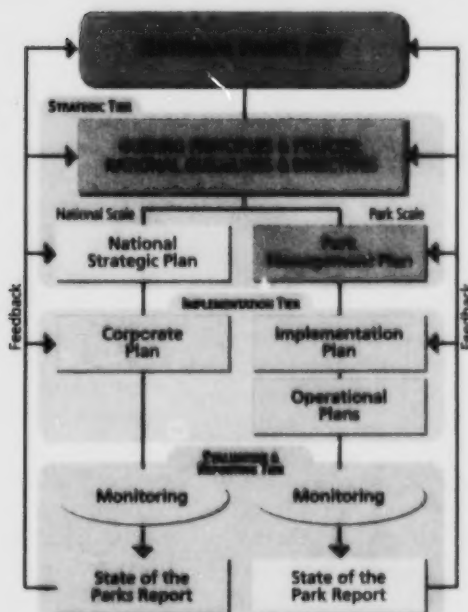
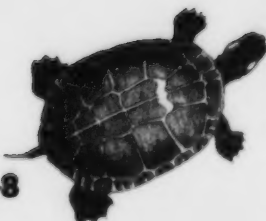


Figure 3-3 A Proposed Planning Framework

A proposed organization to simplify Parks Canada's planning activities by consolidating and streamlining strategic plans, implementation plans and reports at both national- and park-level (regional ecosystem) scales. Dashed boxes indicate new components that need to be developed to make planning and reporting consistent with principles of adaptive management and analogous between scales. The name "Park Management Plan" is retained, as required by the Act, but it is a fundamentally new document incorporating an Ecological Integrity Statement and the strategic aspects of Ecosystem Conservation Plans; all other planning is thus focused by the requirement to manage the ecosystem for ecological integrity first. The management planning process becomes, de facto, an ecosystem conservation planning process and its product, the Park Management Plan becomes, de facto, an ecosystem conservation plan.

Business plans are renamed "Implementation Plans" and contain the tactical aspects of Ecosystem Conservation Plans. Revised "business lines" and "service lines" link to the Park Management Plan, and reflect the requirement that management for ecological integrity is the first priority into which other activities fit. Finally, detailed work plans ("Operational Plans") become appendices to, and dovetail with, the "service lines" in the implementation Plans. Pale-shaded boxes in the upper left and lower right denote new documents — the National Strategic Plan and the State of the Park Report — which do not currently exist.



Planning at the Park Level

The Strategic Planning Tier

At the strategic planning tier, the Panel observed that:

The Park Management Plans generally do not provide a meaningful discussion or overview of the state of the park and how stressors affect park management. Strategic objectives and actions are also usually not well linked to stressors.

Charron (1999)

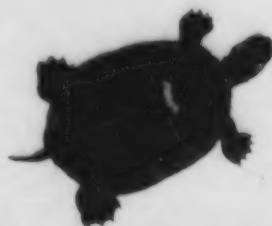
- ecological integrity issues are not generally perceived as the core element that permeates the whole Park Management Plan, and corresponding management strategies are generally relegated to Ecological Integrity Statements and/or to Ecosystem Conservation Plans that are not considered part of the strategic tier of planning (these are produced at the second planning tier);
- recent management plans better reflect the requirement to maintain ecological integrity (such as for Banff National Park), yet still do not adequately reflect that maintaining and restoring ecological integrity is the first priority of national parks; ecological integrity is treated as a separate section in most plans, whereas it should be embedded in the document;
- objectives in Park Management Plans have, for the most part, been vague and fuzzy, rarely measurable and rarely linked to a follow-up monitoring program.

RECOMMENDATIONS

3-7. We recommend that Parks Canada phase out separate Ecological Integrity Statements and Ecosystem Conservation Plans when they become integral to new, revised Park Management Plans (Recommendation 3-3). By this action, maintenance of ecological integrity will become the fundamental goal of park management planning, and the strategic plan will be linked explicitly to policy.

The revised Park Management Plan should include:

- the long-term ecological vision of the park in its greater ecosystem, reflecting ecological time frames, and based on the state of the ecosystem deemed representative of the natural region in which the park is situated;
- a conceptual model of the park's ecological system;
- an evaluation of the park's present ecological state;
- a specific set of goals and measurable objectives that provide a long-term direction toward maintenance or restoration of ecological integrity (the incorporated strategic aspects of the Ecosystem Conservation Plan);
- a comprehensive group of indicators and performance targets related to the goals and objectives and tied to a monitoring and evaluation program;
- strategic plans for resource protection, visitor use and management, active management, and interpretation and outreach given the performance targets for ecological indicators and how each of these activities contributes to conserving or restoring ecological integrity;
- a statement about how visitor use stresses the park's ecological integrity and how such stresses are being eliminated or mitigated (Recommendation 11-3 and 11-4).



3-8. We recommend that Parks Canada provide guidelines on how to develop adequate objectives and indicators for individual parks, which will permit an effective evaluation of progress toward the vision and goals of the Park Management Plan. Conservation scientists should be part of the team that prepares the Park Management Plan. Clearly-defined and measurable

objectives will assure the quality of the plan as an accountability tool and the implementation of an adaptive management approach. Formulation of objectives should take long-term outcomes into account to assess progress toward the park vision, and outline medium-term targets to implement specific actions.

Specific Tools: Consensus Planning, Zoning and Environmental Assessment

Consensus planning, zoning and environmental assessment should provide powerful opportunities and tools for planning for ecological integrity. Parks Canada has had some successes with consensus planning in the establishment of some northern parks, but needs to exercise caution, as consensus planning can lead to compromise with respect to ecological integrity. Neither zoning nor environmental assessment are currently applied in ways that advance ecological integrity; both appear "tacked on" to management planning, even in Parks Canada's proposed new guidelines for management planning, rather than being integral to planning for ecological integrity. We deal with issues surrounding consensus planning and zoning here; environmental assessment is treated more fully in Chapter 12.

Troubles with Consensus Planning

To engage in ecosystem-based management to maintain or restore ecological integrity, Parks Canada is evolving from traditional consultation processes, such as written submissions and public hearings at the time of developing management plans, to more co-operative or consensus processes, such as round tables or other multi-stakeholder processes. Such civic-based approaches acknowledge the range of values held by different parties and endorse the idea that Parks Canada must work co-operatively with neighbors to ensure ecological integrity. Nevertheless, the Panel heard that, in some cases:

- ecological integrity is not understood by participants and facilitators;
- round tables are not given clear definition of the priority of ecological integrity;
- round tables are conducted without knowledge of conservation science at the table;
- representatives of certain perspectives (non-local, conservation values) are excluded as they did not represent local interests;



- round tables with local stakeholders can result in obtaining regional buy-in, but they run the risk of negotiating away the mandate of maintaining ecological integrity because of disparities (sometimes only perceived) between local, regional and national interests. In some cases, such processes may lead to decisions that are contrary to Parks Canada's

Guiding Principles and Policies and sometimes even contrary to the intent of the National Parks Act;

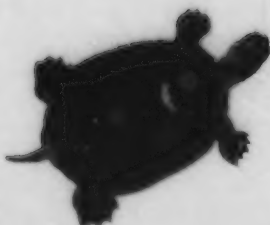
- Parks Canada has yet to develop an efficient, general framework and guidelines for round table structures;
- Parks Canada has not solicited Aboriginal peoples' knowledge in this respect.

RECOMMENDATION

3-9. We recommend that Parks Canada develop national guidelines and associated training for planners and senior managers to successfully protect and integrate the primary objective of Parks Canada's mandate into public involvement processes, that meet the following criteria:

- ensure partnerships with First Nations and incorporate Aboriginal approaches to forming partnerships;
- prior to the decision by any potential partners to participate in a specific process, they receive adequate information about the concept of ecological integrity and its implications for planning and management from Parks Canada;
- all participants agree to abide by the legislative and policy requirements respecting ecological integrity;

- all facilitators and mediators have a clear understanding of the mandate of Parks Canada with respect to ecological integrity;
- conservation scientists and other appropriate specialists from within and outside Parks Canada are active participants in the process;
- formal criteria and tests be developed to ensure that any decisions made through public involvement will uphold the maintenance and restoration of ecological integrity;
- formal evaluations of these new and innovative ways to involve the public be conducted by Parks Canada staff and third parties outside of specific processes.



The Need to Review Park Zoning

Park zoning is a critical conservation tool, providing analysis for decision-making about environmentally sensitive areas and land use planning for determining appropriate activities. Zoning

can be a key tool for development of a Park Management Plan and should be designed to allocate lands within a park on the basis of significance for ecological integrity, within which the potential for human use can then be assessed. However, the Panel found that:

- the current zoning system predates Parks Canada's development of an ecosystem-based management approach and is more reflective of historic land use than

ecological sensitivity;

- zoning categories as they exist are weakly defined in terms of protection of ecological values;
- generally, ecological information is used only for determining the location of Zone I (Special Preservation) areas;
- the scale of zoning is usually at a coarse level and misses small, but significant, ecological elements;
- the zoning system does not take account of aquatic ecosystems;
- the use of natural features as zoning boundaries is the exception rather than the rule.

Guidelines for the development of a new zoning system could include:

- use of state-of-the-art spatial analysis (geographic information systems), using both fine and coarse filters, and reserve design algorithms that take account of:
 - the rarity and/or uniqueness of specific habitat types;
 - the range or habitat requirements of species of concern;
 - sensitivity of abiotic ecosystem components to erosion, pollution, compaction, and other processes; and
 - sensitivity of biotic components to impacts such as habitat loss.
- application of a precautionary approach to assigning significance and sensitivity, so as to avoid development of cumulative effects that convert common and abundant ecological elements into rare and sensitive ones;
- application of the zoning designation regardless of existing or proposed facilities, developments or uses, based rather on the importance of the land to zoning for ecological integrity;
- application of zoning such that boundaries are delineated by natural features, so far as is possible, so that zones are easily communicable to the public;
- recognition of the varying significance and sensitivity as well as complexity associated with freshwater and near-shore marine environments;
- spatial and temporal means of identifying significance and sensitivity.

submission to the Panel

RECOMMENDATION

3-10. We recommend that Parks Canada revise the present zoning system and methods for zoning in order to help designate, through planning, areas

within parks based principally on their significance for maintaining or restoring ecological integrity and on their ecological sensitivity.

This potentially useful tool for park management (zoning) has been mishandled in the national parks. Despite the claims by Parks Canada that zoning is based on ecological factors, in practice zoning reflects current use and development. Instead of identifying inappropriate or non-conforming facilities/uses which have emerged through history, zoning is reconfigured to accommodate these. Without arguing necessarily for removal of such facilities/uses, we believe that zoning, to be meaningful, must truly represent ecological values as they occur in the landscape so that capabilities to withstand activity may be assigned.



An Alternate Approach to Park Zoning: Gwaii Haanas

The draft Gwaii Haanas Management Plan takes an alternative approach to zoning, using geographic information systems to identify gaps in the coverage of ecologically- and culturally-important park attributes by appropriate zones. A more flexible zoning system is proposed that includes spatial and temporal variation in sensitivity to impacts that may at times require temporary closures, such as islands with seabird colonies, or seal and sea lion haulouts, when these areas are being used for nesting or rearing offspring. Restricted access or controls on methods of viewing and access will also become part of a mandatory orientation session for visitors as well as operating guidelines for tour operators.

Parks Canada employee,
submission to the Panel

Designating Wilderness Areas

The Panel's observations about zoning in general notwithstanding, Parks Canada currently has at its disposal an excellent way to maintain ecological integrity within national parks: formal designation of sensitive or undeveloped areas as "wilderness."

The meaning of the term "wilderness" has evolved from ancient cultural and religious ideas about primeval nature. For people of many cultures today, it refers to "a natural or wild place without human development." In the United States, wilderness is associated with specific legal land designations; in Canada, vast areas endure as wilderness with no legal protection. Wilderness has been recognized worldwide as an essential and dwindling reservoir of biodiversity and evolving ecosystems. By definition, wilderness has a high degree of ecological integrity.

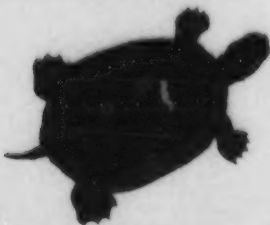
Under Parks Canada's existing zoning system, there is a provision for the legal protection of wilderness as a means to prevent inappropriate development or activities. Section 14 of The National Parks Act provides for the Minister "to prevent activity that is likely to impair wilderness character" (that is, ecological integrity) through the creation of wilderness areas by regulation. Under the existing Act, Cabinet must approve wilderness areas through an Order-in-Council. Changes to the boundary of a designated wilderness area have to be preceded by public consultation and also approved through an Order-in-Council.

RECOMMENDATIONS

3-11. We recommend that within six months, there be an Order-in-Council to convert existing wilderness zones (Zone 2 areas) in national parks into legally designated wilderness as provided by the National Parks Act.

3-12. We recommend that the Minister seek, through Bill C-70 or its successors, to amend Section 14 of the National

Parks Act to empower the Minister to make the necessary wilderness regulations rather than requiring an Order-in-Council through Cabinet Committee. We further recommend that an Order-in-Council be required to remove any wilderness designated through these regulations. Suggested wording for Bill C-70 is in Appendix C.



Implementation and Work Planning Tiers

The main planning tool at the implementation tier is the Business Plan. The Panel observed that there are numerous other planning processes and products considered part of implementation planning, some of which have both strategic and implementation components, but none of which have the status of Business Plans as an accountability tool.

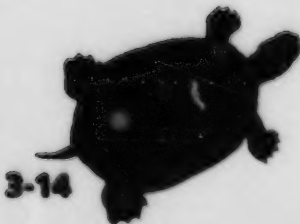
Several of these documents — especially Ecosystem Conservation Plans and Ecological Integrity Statements — attempt to bring ecological integrity into mainstream planning. In our view, that Parks Canada felt it necessary to devise these planning documents as a means to come to terms with planning for ecological integrity, rather than simply incorporating ecological integrity into all planning tools as the core theme, is indicative of the inertia to acceptance of ecological integrity as the core of planning activity. Other implementation-tier plans are not obviously constructed around ecological integrity.

Ecosystem Conservation Plans attempt to establish measurable goals, management strategies and actions to ensure the protection of ecosystems in and around national parks. As such, they are hybrid documents; there is need to separate the strategic from the tactical components. The advent of Ecological Integrity Statements has superseded the strategic aspects of Ecosystem Conservation Plans, and the tactical aspects appear redundant with third-tier work plans. Further, implementation of the Natural Resources (Ecosystem) Management Process, out of which Ecosystem Conservation Plans evolved, proved difficult.

The workload and resources required to produce all the products have been generally underestimated, explaining in part the Auditor General's recommendation that Parks Canada still needs to improve the quantity and quality of its baseline biophysical data in order to respond to ecosystem-based management needs. Nevertheless, the Natural Resource Management Process is dated and Parks Canada is actively working to implement new ecosystem management principles.

The Panel observed that Business Plans do not translate well into implementation plans for maintenance and restoration of ecological integrity, because targets and performance indicators for ecological integrity are often expressed in broad terms only, if at all. Further, business planning for many parks is done at the level of Field Units and rolled up with planning for other heritage sites, and the "business lines" and "service lines" do not reflect the mandate for ecological integrity, making it difficult to allocate and account for expenditures related to ecological integrity. We discuss this more fully in Chapter 13. Linkages with strategic directions of Park Management Plans are not always evident and often so broad that they are meaningless. Finally, review criteria for Business Plans issued by the Executive Board do not include a clear focus on ecological integrity.

Work planning occurs over shorter time scales, often responding to immediate concerns or needs, and out of synchrony with longer-term planning cycles driven by larger agendas. Thus, it is not always evident whether and how on-the-ground activity relates directly to long-term ecological integrity objectives.



RECOMMENDATIONS

3-13. We recommend that Parks Canada fold the strategic components of Ecosystem Conservation Plans, with Ecological Integrity Statements, from this tier into revised Park Management Plans (Recommendation 3-3) at the strategic tier and discontinue the use of Ecosystem Conservation Plans and Ecological Integrity Statements as separate documents.

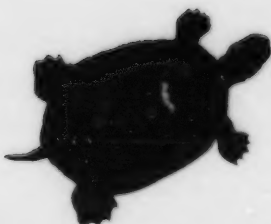
By this action, ecosystem management for ecological integrity would no longer be side-lined from the main planning process. The Panel cautions that the recommendations to phase out Ecosystem Conservation Plans and Ecological Integrity Statements must not be taken out of context. It is not our intent that ecosystem conservation planning be dropped. It is our intent that ecosystem conservation planning and ecological integrity achieve the status of a legislated role by embedding them in the Park Management Plan (Recommendation 3-3). Recommendation 3-13 cannot be implemented without also implementing Recommendation 3-3 to substantially revise the composition of management planning teams; these actions go hand-in-hand and reflect a major shift in planning processes consistent with legal requirements and policy commitments to manage principally for ecological integrity.

3-14. In an effort to move away from the language of business, we recommend that Parks Canada stop using the term "Business Plan" and refer instead to "Implementation Plans" (Chapter 2).

3-15. We recommend that Parks Canada revise the present format of Implementation (Business) Plans to also become comprehensive accountability tools for maintenance and restoration of ecological integrity. The tactical components of Ecosystem Conservation Plans should be outlined in the Implementation Plan and elaborated in individual Operational Plans for specific projects as means to achieve and maintain ecological integrity. Operational Plans should be considered appendices to the Implementation Plan, thus making explicit the links from the Guiding Policies and Principles and strategic Park Management Plans to action-oriented work plans through Implementation Plans (Figure 3-3). The Implementation Plan should describe:

- clear linkages to the strategic Park Management Plan in sufficient detail to be meaningful;
- progress to the goals described in the Park Management Plan;
- how the park will monitor implementation of aspects of the Implementation Plan related to ecological integrity;
- business and service lines that can be used to more readily distinguish the financial and human resources specifically allocated to ecological integrity with clear information on funding for salaries, goods and services, and others such as emergency funds (Chapter 13).

3-16. We recommend that Parks Canada review the length of the cycle for implementation planning with a view to making it commensurate with the length of the cycle for strategic planning, such that each new implementation planning cycle immediately follows and is guided by new Park Management Plans. This will facilitate better linkages between strategic and implementation planning.



3-17. We recommend that Parks Canada designate stand-alone work plans as "Operational Plans" under the umbrellas of the strategic and implementation plans to facilitate better linkage between strategic directions and on-

the-ground activities to achieve ecological integrity objectives. This can be done by adding Operational Plans as appendices to the Implementation Plan, thus forcing the Implementation Plan to refer explicitly to them as well as to strategic Park Management Plans.

Evaluation and Reporting: The Forgotten Tier

The Panel observed that, except for recent developments in Banff National Park, evaluation and feedback on

progress toward ecological integrity objectives are virtually non-existent at the park level. We earlier recommended (Recommendation 3-5) a formal evaluation product in the form of a five-year State of the Park Report produced by each park. Further, while individual parks contribute to the national State of the Parks Report, the length of evaluation and reporting cycles is different from the length of management and business planning cycles, leading to confusion and waste of staff time. Finally, local stakeholders have voiced desires to review progress more frequently than the legal five-year interval associated with Park Management Plans. Parks Canada must develop a means to report more frequently to stakeholders and others about progress to implementing measures to protect and restore ecological integrity, without directing staff time and resources away from implementation.



Monitoring should be a valuable part of the planning process.
J. Pleau/Parks Canada

RECOMMENDATION

3-18. We recommend that Parks Canada annually report about progress to maintaining and restoring ecological integrity in individual parks to provide a short-term feedback loop at the park level (Figure 3-4). A formal, mandatory Annual Plan Implementation Report should be available to the public using appropriate public involvement mechanisms. (This report could be simply a

compendium of the annual reports on individual Operational Plans.) The Annual Plan Implementation Report should be short and designed to facilitate easy "roll up" into a mandatory five-year report on the state of ecological integrity in the park (Recommendation 3-5) prior to the beginning of the next park management planning cycle.



Planning at the National Level

Strategic Planning

Planning at the scale of the entire system of national parks could benefit from reorganization to an adaptive management framework that parallels that outlined above for park-level planning. Currently, such parallels are patchy, at best (Figure 3-3).

For example, at the level of strategic planning nationally, there is at present no counterpart to strategic Park Management Plans at the park level (Recommendation 3-4). The current National Park System Plan focuses on completion of the park system, but does not provide guidance to system-wide decision-making with respect to ecological integrity at the national scale in the

same way that Park Management Plans are beginning to evolve as strategic plans for delivering ecological integrity at the scale of individual parks.

Chapters 8 and 9 deal with the need for Parks Canada to think more strategically about its partnership role in greater protected areas networks, and issues surrounding new park establishment. System completion alone is unlikely to suffice for the maintenance of ecological integrity. It is not safe to assume that planning strategically for ecological integrity at the level of individual parks will necessarily result in ecological integrity in the system as a whole. Parks Canada will require a strategic plan for managing for ecological integrity, akin to individual Park Management Plans, which describes targets for verifiable indicators of ecological integrity at the national level, too.

Implementation Planning

At the level of implementation planning, the national Corporate Plan is analogous to Implementation (Business) Plans in the parks or Field Units in that it is the key accountability tool between the Chief Executive Officer of Parks Canada and the Minister, in the way that Implementation (Business) Plans provide accountability between Field Unit Superintendents and the Chief Executive Officer. However, the Panel was concerned by the description of the Corporate Plan provided in the Planning, Reporting and Accountability Structure recently tabled with the Treasury Board — that the Corporate Plan is likely to suffer the same shortcomings as a tool for implementing

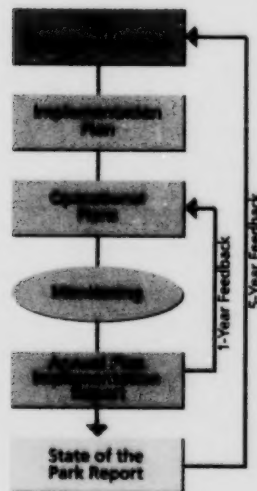
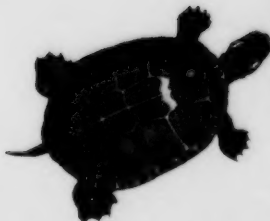
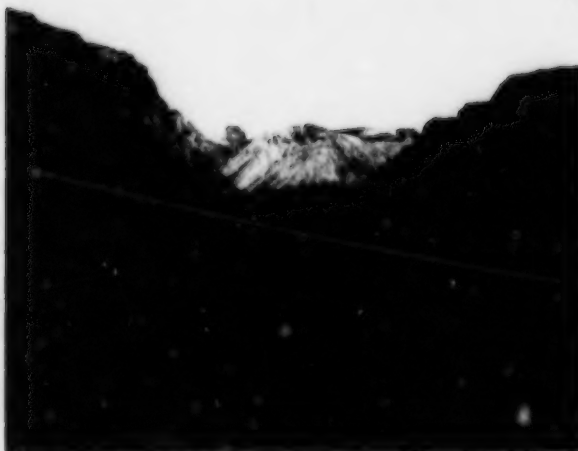


Figure 3-4 Evaluation and Reporting in Planning

A "close-up" of the right side of Figure 3-3, illustrating park-level management planning, to show the relationship between annual evaluation and reporting on progress to the objectives of Implementation Plans and longer (five-year) evaluation and reporting on progress to objectives of Park Management Plans.





The Torngat Mountains in Labrador may become a national park.
Ian MacNeil/Parks Canada

strategies at the scale of the national parks system that the present Business Plans face at the level of individual parks. Ecological integrity is still not the guiding principle, nor the first priority for management under which all other activity takes place. Rather, it remains one of many things Parks Canada must do, and the "business lines" and "service lines" do not lend themselves to easy accounting of expenditures for ecological integrity.

Evaluation and Reporting

At the reporting tier, although few parks report individually on progress to achieving ecological integrity objectives (Figure 3-3, Recommendation 3-4), reporting at the national level has a high profile in the form of the biannual State of the Parks Report. Even so, the Panel heard that the State of the Parks Report is not reviewed through any Parliamentary process.

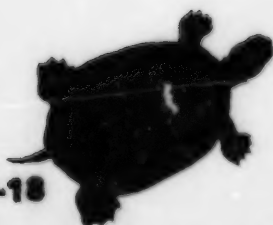
Without a guiding national strategy to achieve ecological integrity for the system as a whole (Recommendation 3-4), the State of the Parks Report is relegated the role of reporting on the collective state of the "rolled up" parts. Again, because the integrity of the whole cannot be assumed to be merely the summed integrity of the parts, the current State of the Parks Report does not address whether the parks system, as one component of greater protected areas networks, is adequately managed for ecological integrity.

RECOMMENDATIONS

3-19. We recommend that the basic elements of a new National Strategic Plan should be similar to those proposed for revised Park Management Plans (see above), but scaled to the national level, and particularly include:

- the strategy that Parks Canada will follow to best position and manage its protected areas in relation to those of its neighbours in a greater, national protected areas network (Chapters 8 and 9);

- the targets for verifiable indicators that the greater protected areas networks, of which national parks are a component, adequately protect Canada's ecological integrity and biodiversity;
- the extent to which national-level indicators of ecological integrity meet targets;



3-20. With respect to implementation planning at the national level, we recommend that Parks Canada revise the Corporate Plan along lines conceptually similar to those suggested for Implementation (Business) Plans (Recommendation 3-15), especially so that business lines and service lines better reflect the principal objective of national parks with respect to ecological integrity and to better track the allocation of resources to the maintenance and restoration of ecological integrity. Develop Corporate Plans to achieve national-level targets for indicators of ecological integrity.

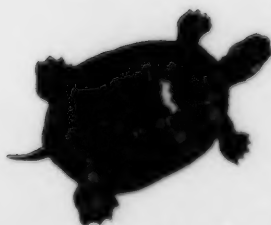
3-21. With respect to evaluation and reporting at the national scale, we recommend that Parks Canada continue to produce the State of the Parks Report, but:

- plan ahead to eventual revision and adaptation of the State of the Parks Report to address progress to the goals and objectives of a new strategic plan for managing the system of national parks for ecological integrity at the national-level (Recommendations 3-5 and 3-19);
- better align strategic planning with evaluation and reporting to ensure up-to-date information is available at the beginning of each new planning cycle. Consider changes to the National Parks Act that would eventually bring the required report production cycle (currently every two years) in line with the new cycle of strategic planning at the national level, which will necessarily be longer (minimally five years). In the three-year gap created by extending the reporting cycle for the State of the Parks Report from two to five years,

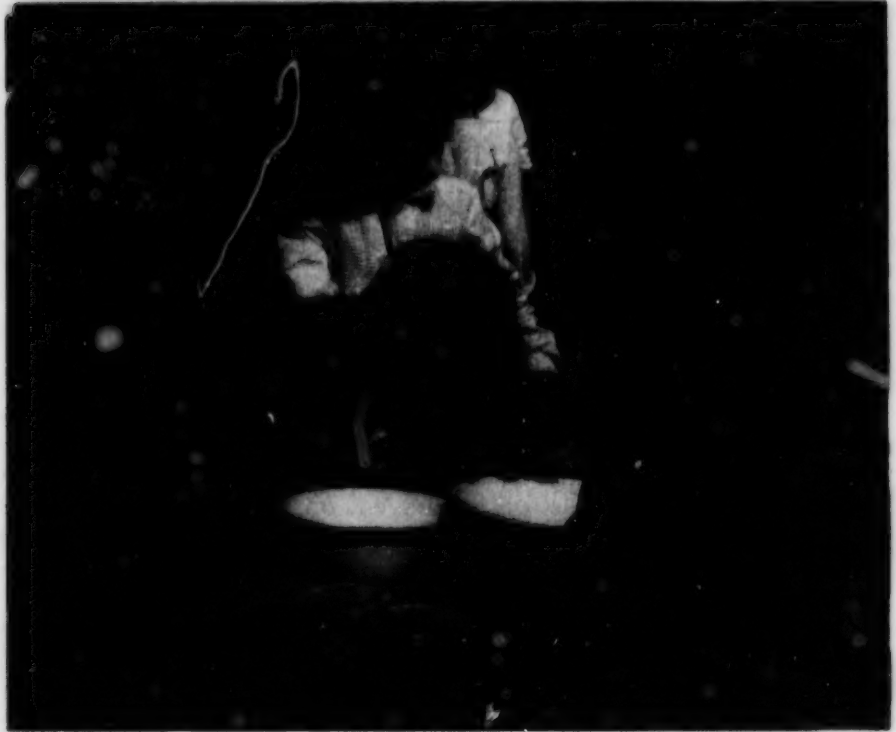
the new, mandatory Annual Plan Implementation Reports at the park level (Recommendation 3-18) and annual reports on Corporate Plan implementation (as required now by the Parks Canada Agency Act) would fill the need for more frequent public reporting locally and nationally;

- ensure that the State of the Parks Report is reviewed by the Standing Committee on Canadian Heritage.

3-22. To those ends, we recommend that Parks Canada create an enhanced role for regional Service Centres to ensure that national-, regional- and park-level planning, implementation, evaluation and reporting is co-ordinated and mutually supportive (Chapters 2 and 4).



CHAPTER 4: BUILDING CAPACITY FOR LEARNING AND EDUCATION



Children participating in an interpretation program about aquatic insects. P. Wright

Parks Canada currently lacks the necessary capacity in both the natural and social sciences to effectively manage for, and inform society about, ecological integrity in national parks. With notable individual exceptions, all levels of Parks Canada lack a well-established culture for conducting, using, and appreciating science as part

of park management, interpretation and regional integration. Knowledge derived from the natural and social sciences, including Aboriginal peoples' naturalized knowledge, should be the basis for informed decisions, management actions and education within parks and beyond park boundaries.

"The use of science in the management of Canadian national parks has had a very uneven history. Given the dramatic changes that are occurring in the Canadian landscape, the parks will not survive as intact ecosystems unless steps are taken to use science in their management. This can be achieved only by improving the quality of the Canadian Parks Service science program, and upgrading the understanding by park managers and planners of the importance of using science in their work."

David Lohnes,
former Director Resource Conservation, Parks Canada (1991)



A Science Vision for National Parks

The Panel believes that national parks can play a key role as centres for learning and educating about Canada's natural environment, specifically contributing towards the maintenance of biodiversity in all protected areas embedded within a sustainably-managed landscape. Our vision for a new role for Parks Canada and for national parks — placed in the future, five to ten years from now — is as follows:

Ecological understanding and education are seen as important purposes for national parks. National parks are known as "centres of ecological understanding," where science knowledge is incorporated into park management, and is used to understand human impacts inside and outside of protected areas.

Parks are viewed as living laboratories where Parks Canada staff pursue active partnerships with Aboriginal peoples, social and natural scientists from universities and other science-based agencies, industry, provincial and territorial authorities, and regional and local communities, to enhance society's knowledge of natural ecosystems. National parks information forms an integral component of Canada's educational system, from primary to university levels.

Canadians look to parks to help them understand the state of the country's environment. National parks have become benchmarks with which people can understand human impacts on an ecosystem scale, and take action to ensure sustainability. National parks are part of a cross-country system of benchmarks that monitor such things as the persistence of species at risk, changes in biodiversity, and the impact of climate change.

Parks Canada fosters a culture of continuous learning about the natural world and its conservation. National parks provide a stimulating and rewarding environment, thereby attracting new and energetic people to form a dedicated workforce. By policy, each park makes efforts to integrate its planning and management with the surrounding region to understand the greater ecosystem encompassing each national park, and to contribute to environmentally astute land management. To achieve this goal, each park, in collaboration with its partners, monitors ecological integrity in a regional context.

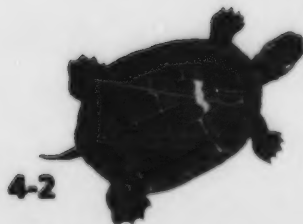
Science is understood and appreciated as a key process for embracing natural complexity and as the basis for policy decisions, management actions, and education.

Science as Necessary Information

Science is a process for acquiring information and knowledge that enables learning, a means to make an uncertainty more certain. Scientific information, including the natural and social sciences, should be central to managing national parks for ecological integrity and understanding a park's greater ecosystem. The importance of science knowledge has been identified for all levels of the Canadian federal government (for instance, the Report of the Council of Science and Technical Advi-

sors, 1999; the October 1999 Speech from the Throne) and for parks agencies in other countries (U.S. Natural Resource Challenge, 1999).

When the necessary information does not exist, the precautionary principle should be invoked to ensure that Parks Canada is successful in maintaining ecological integrity (Chapter 1). Applying the precautionary principle ensures that activities will not adversely affect the environment.



Learning Together: Naturalized Knowledge Systems and Western Science

Much has been written about the differences between naturalized knowledge systems and Western science. The controversy has tended to reduce the rich histories of both systems to contests about whose care, and whose knowledge, can best manage of Canada's shared natural resources.

A naturalized knowledge system (also known to many non-Aboriginal people as "traditional ecological knowledge") comprises four basic phases that roughly parallel an individual's growth throughout life:

- innate knowledge with which one is born;
- intuitive knowledge about how and why things "are";
- empirical knowledge that is collected by experience and which might contest intuitive knowledge;
- harmonious or spiritual knowledge realized when conflict between empirical knowledge and intuitive knowledge is reconciled and better understanding is achieved.

Like naturalized knowledge, Western science is "a way of knowing." Using this knowledge system, people grope for better understanding of the world by testing intuitive knowledge (current, best understanding about why things "are") with observations (new empirical information). The two often have to be reconciled, and are sometimes harmonized with previous knowledge. Western science is often represented by its fiercest proponents as more rigorous — and thus producing better knowledge — than other ways of knowing.

Both systems use the assimilation of new knowledge to improve understanding of the world — that is, learning. By recognizing this similarity, instead of emphasizing differences, Western and Aboriginal cultures may agree upon the shared goal of learning to improve responsibility for the natural world.

Science as a Key Part of Park Management and Education

The Panel saw many examples where science contributed critical information to managing for ecological integrity. Below are just a few examples of the role science can play towards learning about park ecosystems and providing information for education and outreach:

- in Fundy National Park, the Greater Fundy Ecosystem Research group used the results of 30 research projects to develop a set of biodiversity guidelines for forest management. These guidelines are being applied in the Fundy Model Forest on lands surrounding the park;
 - in prescribed burn areas in La Mauricie National Park, scientific monitoring of white pine is providing Québec foresters with important information on how to regenerate white pine for commercial purposes;
 - in Klane National Park Reserve, an interdisciplinary assessment of wilderness river use preferences, bear habitat, and bear risk potential, is being used to develop a revised pattern of rafting use for the Alsek River. This assessment has enabled the park to assure bear habitat and movement while maintaining important elements of the wilderness rafting experience;
 - in Banff National Park, a habitat effectiveness model for grizzly bears is being used to plan visitor use allocations for backcountry areas.
-



Science contributes information and knowledge of ecological integrity in several key areas:

- Canadians need to understand the state of the ecosystems in which they live. Canada's parks can play a key national role as centres of understanding of biological diversity and the ecological condition of Canada. Individual parks can be sentinels for the ecological condition of their region by systematically monitoring various aspects of ecological integrity (Chapter 6). Some parks are already part of the fledgling Environmental Monitoring and Assessment Network administered by Environment Canada to track change toward understanding the impact of global climate change;
- science capacity is necessary to understand the degree of uncertainty around a decision and the risks inherent in a decision. Park managers often must make decisions in the face of uncertainty. The best response to dealing with the complexity of nature is to embrace uncertainty through a combination of adaptive management (as explained in Chapter 3) and the use of the precautionary principle (Chapter 1). Politicians and managers cannot be held accountable for failure to predict the future. However, they can be held accountable for failing to adopt adequate procedures to evaluate policies and management actions for achieving specific goals, and for failing to choosing the most precautionary option;
- knowledge gained by scientific research within national parks and their greater ecosystems should be communicated to visitors and the public via professional interpreters and outreach specialists (Chapter 10). Some national parks now include participation by scientists in interpretive events as a condition of their research permit. As well, develop-

ment of new techniques for improving ecological integrity can be shared with regional partners;

- parks are living laboratories that should be widely used by educators, through direct experience or via electronic media (Chapter 10). Participation of non-scientists (such as local citizens and students) in park science programs introduces the public to the role of scientific research in understanding the natural environment. Many universities currently include studies in national parks as components of their curricula.

In the Absence of Scientific Information

As introduced in Chapter 1, the precautionary principle should be invoked when changes to the environment are contemplated in the absence of information about whether the changes are likely to have negative environmental consequences. Experience indicates (as in the example of the Banff-Bow Valley Study) that the principle is readily misunderstood and misrepresented as a blank cheque for anti-business interests to derail development without any serious scientific research and analysis. That the precautionary principle is, in fact, well-grounded in "good science" requires clarification.

Proponents and critics of the precautionary principle alike often invoke the idea of "scientific proof" of negative environmental effects. Proponents argue that absence of "proof" dictates caution; critics argue that absence of "proof" is a green light for development. On this count, both are incorrect. Contrary to popular appreciation about how reliable scientific knowledge is actually gained, it accumulates by a process of "disproof" — that is, science is limited to demonstrating what is false. It is not actually possible to "prove" that something is true.



The precautionary principle is scientifically valid, and has force as a conservation tool, precisely because it is founded on this essential philosophical distinction between the ability (available to science) to disprove false information and the ability (not available to science) to prove true information. Thus, the precautionary principle places the burden on proponents to demonstrate that development will not have alleged negative effects. In the context of the definition of ecological integrity advanced by the Panel, for example, proponents of development must show that projects would not cause a park to be different from the desired state.

One way to reduce controversy that invoking the precautionary principle out of necessity sometimes entails, is to treat it as a last resort and, instead,

invest pro-actively in acquisition of knowledge about natural systems so as to be able to address head-on the criticism that lack of knowledge is being used to stall progress and development.

Realizing a new role for national parks as centres of ecological and biodiversity understanding perfectly combines policy, need and opportunity for Parks Canada. This new role will provide an opportunity to organize around a vital purpose that is directly aligned with conserving ecological integrity, promoting conservation advocacy and providing vital knowledge to Canadians.

However, before this can happen, there needs to be a significant effort to build internal and external science capacity within Parks Canada.

Parks staff undertaking research on black bears.
J. Pleau/Parks Canada



Building Science Capacity



Interpretation programs, such as this one in Forillon National Park, must be based on sound science.

P. St-Jacques/Parks Canada

We define science capacity as the capability of Parks Canada to acquire and use scientific information relevant to managing and educating for ecological

Comparing Science Capacity

To illustrate the current level of science capacity in Canada, compare Canadian national parks with similar parks in the United States. Both Yellowstone National Park (Wyoming) and Glacier National Park (Montana) are comparable to Jasper National Park in terms of ecosystem diversity, resource management issues, geographic area, and visitor numbers and activities. Glacier National Park currently has a scientific staff of nine — eight professional scientists and one technical/administrative support person. Yellowstone National Park currently has 11 scientific staff — eight professional scientists and three technical/administrative support staff. These parks receive additional professional scientific support from a regional ecological science center in a wide range of physical and biological sciences. Each park also has a number of ranger staff (six in Glacier and seven in Yellowstone) who work full-time on natural resource studies, for a total of at least 15 science staff in Glacier and 18 in Yellowstone.

In  Park currently has a  r.

integrity. The capability should be a combination of internal staff (natural and social scientists, interpreters, wardens, and outreach specialists) and experts from organizations and governments external to Parks Canada. These would include provincial, territorial and other federal agencies, universities, Aboriginal peoples, non-governmental organizations, corporations and industry associations. Volunteer organizations, both local and national, could provide assistance and also act as venues for education concerning ongoing research.

At a minimum, Parks Canada must have the internal ability to understand and communicate scientific information,

apply it to park management, and know where and how to seek additional scientific information. It is obvious that an organization managing 39 national parks, protecting nearly 250,000 square kilometers of land and receiving over 14 million person-visits annually requires a substantial science capacity to plan, implement and integrate research necessary for management, visitor education and outreach. As the system grows, so will the need.

According to its guiding policies, Parks Canada has the clear intention of using science in its management and education as well as maintaining a capacity to acquire scientific information. However Parks Canada has not developed the capacity to support its stated policy goals. Certainly Parks Canada has undertaken some excellent scientific work and in some cases scientific knowledge is being applied to decision-making, as is evident in the Banff Management Plan. Currently, however, knowledge gained about the natural environment is not consistently incorporated into park management, nor is it widely disseminated to the public or regional partners, due to insufficient expertise. We noted major deficiencies in five areas:

- internal and external capacity to conduct science and provide science advice;
- understanding and support of science within management;
- using existing scientific knowledge for park management, education and regional partnerships;
- using science to understand and monitor ecological integrity;
- management of data and information.

Internal Science Capacity: Insufficient to Support the Mandate

Historically, Parks Canada has not had a significant science capacity and thus has little experience using science in management. There have been some past efforts to increase science capacity, but they have tended to be sporadic and not sustained. There was little

attempt at developing an internal ability to understand park ecosystems until the late 1960s, when the first park naturalists were hired and began communicating information about ecology to the public.

In the 1970s, the first true internal scientific capacity was developed with the Resource Inventory Task Force, which established biophysical inventories for the existing national parks. This was a groundbreaking approach that was halted by budget cuts. Currently, newly established parks continue to be hampered by the lack of comprehensive biophysical inventories. From the 1960s until the early 1980s, the Canadian Wildlife Service provided some dedicated scientific advice to parks, but this too was eliminated. In addition Parks Canada has generally been unable to manage, understand or fully utilize this scientific advice.

Beginning in the 1980s, Parks Canada has slowly upgraded its internal scientific capacity, hiring wardens with university training (though not a formal requirement of the position) and establishing dedicated park ecologists in

the East and conservation biologists in the West. This trend continues today with 11 Ph.D.-level ecologists and 40 staff with Master's degrees out of a total work force of 2100. This capacity-building is a positive trend, but it is not sufficient to meet the challenge of managing for ecological integrity. Having a single park ecologist or a single conservation biologist in a large or highly stressed park is not commensurate with the scope and magnitude of the issues facing Canada's parks. In addition, responsibility for new federal initiatives, such as the "Species at Risk" legislation (Chapter 5) add extra duties to all levels of Parks Canada, but there are no additional funds or personnel to manage these new actions.

The communication of scientific knowledge to various public audiences is also critical. In the downsizing of the 1990s professional interpreters were largely lost from the system, and with them the ability to reach broad audiences (Chapter 10).

In practice, the lack of science capacity expresses itself in many ways. Few park managers are able to give defensible statements on the state of ecological integrity within their parks. All park managers state that they would like to be conducting a full set of monitoring programs, but lack the scientific capacity. Both deficiencies leave the park vulnerable to inappropriate development. A lack of scientific capacity also hurts existing research efforts. Resource staff, such as wardens, Ecosystem Secretariat staff and park interpreters, cited a lack of science training and upgrading as an important impediment to carrying out the ecological integrity mandate. There are too few opportunities for resource staff from parks across the nation to exchange ideas and experiences on how to best maintain ecological integrity. There is also a lack of regional and national level co-ordination to assess the larger

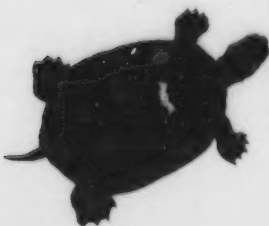
Social Sciences

The social sciences are the disciplines of science that study humankind in relation to cultural, social, and physical environments. In the academic world, social sciences are one of the three main divisions of human knowledge (the others being the natural sciences and the humanities) although there is considerable overlap between the three divisions.

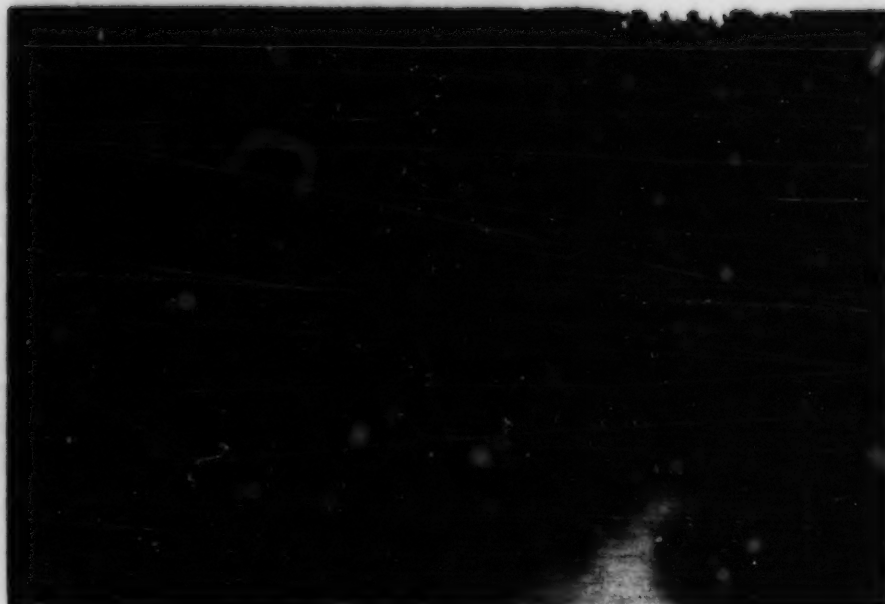
The United States National Park Service (NPS) has a plan for furthering the social sciences in national parks. The vision for social science is, simply stated: "The objectives of the NPS social science program are to conduct and promote state-of-the-art social science related to the mission of the National Park Service, and deliver usable knowledge to NPS managers and the public." Usable knowledge includes information, insights, predictions and solutions for understanding visitors and their impacts. Usable knowledge must be provided at the proper point in the decision-making process in park management and it is based on state-of-the-art science, which include both basic and applied research.

The National Park Service lists the following disciplines as being commonly considered as social sciences: anthropology, archaeology, economics, ethnography, human geography, psychology, political science, and sociology

from Machlis (1996)



Kajinikujik National Park.
W. Barrett/Parks Canada



scale, multi-park projects and resultant data. In addition, lack of a national leader responsible for management of ecological integrity has hampered the use of science in decision-making (Chapter 2). These situations have contributed to the high levels of frustration and stress experienced by national park staff.

Much of the research carried out by Parks Canada is not viewed by the larger science community as properly designed, implemented or analyzed. Research designs are often inadequate to answer the questions posed. There is little use of basic scientific tools, such as statistical models. Few internal park research projects are ever published in refereed scientific journals. Many reports are not circulated to other ecological integrity practitioners, let alone to the public. There is even a misunderstanding within the organization of the term "peer review." Peer review refers to a blind, impartial review of reported research results by other scientists. It does not mean getting a

colleague look at your work.

Science capacity is also required for science advice — value-added guidance based on scientific theories, data, findings and conclusions, provided to inform policy and regulatory decision-making. Included is the ability to receive and interpret science from external specialists. Science advice for national parks is limited, because the few existing internal specialists cannot be expected to provide knowledgeable advice on the wide range of issues facing parks.

That being said, national parks have a better capacity for science advice in the natural sciences than the social sciences, where science advice capacity is extremely weak. Given the range of human management issues facing parks, the lack of sound social science advice is particularly worrying. The Panel noted that many initiatives, such as visitor demand management, are being developed without appreciation of the existing state of theoretical knowledge in the field.



Scientists are also needed to develop strong partnerships with local communities, to understand the local community's values and work towards building sustainably-managed landscapes. The Panel also noted a huge gap in the expertise required to develop interpretation programs, both within the park and for outreach to a wider audience.

We did note some very good scientific work going on in the national parks, Service Centres and the National Office. Examples include the research on rare plants and arctic hare in Gros Morne National Park, and fire history patterns in Banff National Park. Individually, Parks Canada staff have been recognized for their excellent research programs. In November 1999 Kejimikujik National Park and its ecosystem science manager received the Canadian Council on Ecological Areas' Gold Leaf Award for the park's "exceptional scientific contributions" to conservation.

However, these good efforts tend to be patchy and based on individuals with knowledge, passion and commitment. A system-wide, co-ordinated program to deliver the amount and quality of science required by national parks is lacking.

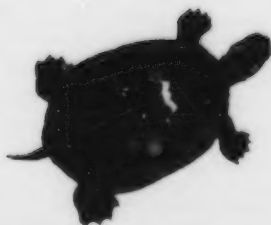
Scientific capacity is required at all levels of Parks Canada. However, the capacity required is different at each level and must be strategically placed to achieve maximum benefits.

Science Capacity at the Park Level

Scientific capacity must start at the park level. To fulfill its ecological integrity mandate, a park must be able to:

- provide an ongoing assessment of the state of ecological integrity of the park in the greater ecosystem;
- provide science advice for park management;
- communicate meaningfully with scientists conducting research in the park and assess programs;
- be a credible scientific voice on regional ecological issues (Chapter 9);
- conduct active ecosystem management initiatives such as prescribed fire and wildlife management (Chapter 5);
- develop and implement appropriate monitoring programs, thereby acting as ecosystem benchmarks (Chapter 6);
- develop expertise in geographic information systems, and data and information management (Chapter 6);
- translate scientific information on ecological integrity into formats understandable by non-scientists, and communicate important ideas to visitors and the public to further their understanding of ecological integrity (Chapters 10, 11 and 12).

With few exceptions, the capacity to fulfill these needs does not currently exist at the park level.



Science Capacity at Regional Service Centres

Science capacity is also very weak at

the regional Service Centres. The regional Service Centres have been greatly disrupted by the past five years of budget and staff cuts to Parks Canada. There are very few scientific staff left in the regional Service Centres. The Panel also found that regional Service Centres had almost completely lost their co-ordination roles and capacities, leaving a huge gap in regional program co-ordination. Many strategic issues, which could be managed on a regional basis, are being dealt with at the park level in an unco-ordinated manner. The Panel noted that many parks are completely without any regional level support. There is also no strategic plan for what kind of science capacity should exist to meet regional needs, nor is there capacity to work with regional municipalities, nor to promote appropriate federal-provincial initiatives.

The Panel supports the revitalization of regional Service Centres to carry out the following tasks:

- provide specialized scientific expertise on park-based issues;
- co-ordinate regional science programs and guide research projects;
- provide or facilitate peer review;
- compile information on larger multi-park scale;

- provide support for protected areas management and key regional ecological issues;
- provide negotiation skills for appropriate provincial-federal or territorial-federal issues explicit to science;
- provide program development and evaluation;
- provide credible assessment of ecological integrity for the park-level State of the Park reports recommended in Chapter 3;
- work with Aboriginal peoples.

Science Capacity at the National Level

In Parks Canada's National Office, there has been an ongoing attrition of staff and capacity over the last five years due to budget reductions. Currently there are simply too few bodies, spread too thinly, to provide the kind of quality science capacity that is required for Parks Canada to be a credible science-based organization. Chapter 2 discusses the need for a national-level scientist on the Executive Board, to successfully implement the ecological integrity mandate. The National Office must be able to:

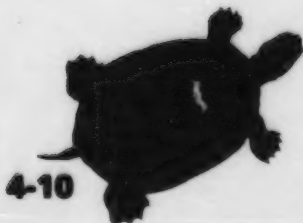
- provide current, high-quality science advice to senior managers and the Executive Board;
- provide a credible national assessments of ecological integrity for the legally-required national State of Parks Report;
- provide science advice and analysis to new park establishment initiatives (Chapter 8);
- provide scientific expertise in the area of marine protected areas establishment and management;
- form partnerships with universities and other science-based departments, industry and Aboriginal peoples on national and large-scale issues such as visitor management, climate change, long-range transport of pollutants, and fire effects;

The Rise and Demise of Parks Canada's Atlantic Ecosystem Science Fund

In order to improve the quality of science supported by Parks Canada, ecosystem management staff of the Atlantic region requested stable funding for ecosystem science projects and long-term ecosystem monitoring programs. Ecosystem science professionals wanted a funding arrangement that did not have to compete with the often-urgent highway and visitor facilities requirements. In 1995 an Ecosystem Science Strategy was approved, with an ecosystem science fund with minimum allotment of \$1.5 million per year, which reflected the amount Atlantic Field Units were allocating to ecosystem science projects. A Scientific Advisory Board, which reviewed all projects using a blind peer review process, administered the fund.

The fund functioned for only two financial years, with full funding only in the first year. Before the beginning of the third year some Field Unit managers convinced Parks Canada senior management that all funds should be allocated to Field Units without the independent review of the Science Advisory Board. Funds were included in Field Unit appropriations without a requirement for review by peers. The Board now reviews all science projects, but only after the funding has been allocated.

submission to the Panel



- provide specialized scientific expertise on park-based issues, such as preservation of species at risk (Chapter 5);
- ensure compliance with relevant federal legislation such as the Canadian Environmental Assessment Act, Migratory Bird Act, the Canadian Fisheries Act and the proposed Species at Risk legislation;
- work with Aboriginal peoples to incorporate naturalized knowledge (Chapter 7).
- there are no career paths for hiring scientists, or for developing and retraining existing staff;
- while several Parks Canada staff have returned to university to attain advanced degrees, there is no consistency in terms of support, including financial support;
- with the exception of the National Fire Management Network, there are no operating networks at the national level to manage national issues. (A number of these networks existed in the past, such as wildlife management, but seem to have disappeared during the past five years.)

In part, these tasks are not being done now because the level of investment is not sufficient. For example, at the national level only one-quarter of one person's time is currently devoted to visitor management issues, despite the fact that significant visitor impacts are reported at 24 national parks (State of the Parks 1997 Report).

The role of Parks Canada's National Office in directing science and management for ecological integrity is inconsistent and generally weak. The Panel found that:

- there is no national science policy or strategy;

We heard repeatedly from park staff that they need national direction and national science networks if they are going to be successful in managing for the protection of ecological integrity. A National Science Strategy would inject certainty of purpose, and eliminate ambiguity regarding the intent and direction of Canada's national parks.

One possible profile of Parks Canada as a science-based organization is presented in Figure 4-1.

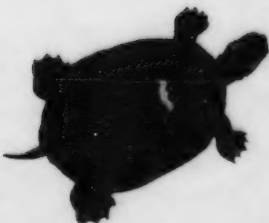
RECOMMENDATIONS

4-1. We recommend that Parks Canada significantly upgrade internal learning capacity, including the natural sciences and social sciences, planning, interpretation, environmental assessment, and the capacity to effectively build regional liaisons (Figure 4-1).

This upgrade will require an investment similar to the magnitude of the national park allocation of the Green Plan. Parks Canada cannot hope to understand and manage for ecological integrity with current level of investment in science expertise. Upgraded internal science capacity is required at all levels — the National Office, regional Service Centres and park level. The Panel

estimates the cost of this significant upgrade in science capacity to be \$28 million per year in additional funding (Chapter 13).

In the Panel's opinion, improving Parks Canada's science capacity is a critical step. Methodological issues such as monitoring, data management and research will automatically improve once science capacity is upgraded. (These issues are discussed further in Chapter 6).



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4-2. We recommend that Parks Canada manage and upgrade its science capacity by:

- developing a National Science Strategy including external national and regional Scientific Advisory Boards to guide national park use of science, including acquisition and evaluation of scientists, funding of science, and standards such as peer review;
- revitalizing the regional Service Centres as regional Ecological Centres to support park programs and develop and implement regional integration programs;

- creating a clear path for internal upgrading of existing national park staff to attain advanced degrees and help fill the science needs of Parks Canada, including a formally supported education leave program (estimated cost \$2 million per year to allow 20 staff to take advanced degrees at one time);
- hiring scientific staff positions using external competitions, to rapidly upgrade scientific capacity and access to the best possible expertise.

Figure 4-1. Recommended Profile for Parks Canada as a Science Based Organization – Internal Capacity

Organizational area	Level of Dedicated Internal Science Capacity							
	natural science			social science		other disciplines		
	Ph.D.	Masters	tech	Ph.D.	Masters	planner	EA specialist	data/IS manager
Small parks, minor to moderate ecological and social issues*		at least 2	3		at least 1	at least 1 regional planner, Master's level	1	1
Large parks with minor to moderate issues **	at least 1	at least 2	3		at least 1	at least 1 regional planner, Master's level	1	1
Small parks with difficult internal and external issues ***	at least 1	at least 3	4		at least 1	at least 1 regional planner, Master's level	2	2
Large parks with difficult internal and external issues †	at least 3	at least 6	12	at least 1	at least 2	at least 2 regional planners, Master's level	2	1
Regional Service Centres ††	at least 3	at least 6		at least 1	at least 2	1 planner for provincial issues	1	2
National Office †††	at least 4	at least 10	at least 5	at least 2	at least 2	ecological planning/design team	2	co-ordinator

* such as Waterton, Terra Nova, Fundy

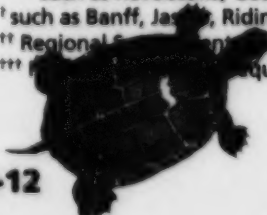
** such as Prince Albert, Wapusk, Nahanni

*** such as Revelstoke, Georgian Bay, Point Pelee

† such as Banff, Jasper, Riding Mountain

†† Regional Service Centres also require at least one senior negotiator for federal-provincial issues

††† National Office requires one person in the role of Chief Scientist or Director of Ecological Integrity, plus one



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A student at an archaeological site in Vuntut National Park.
W. Lynch/Parks Canada



External Science Capacity: Making Science Connections

External science expertise is used extensively by national parks across the country. The Panel saw many examples of partnerships with universities, other federal agencies, provincial agencies and industry. Many of these partnerships have yielded important scientific findings, and have contributed to ecological integrity, both within the parks and on a larger regional scale. Examples include:

- the Greater Fundy Ecosystem Project (Fundy National Park) and the East Slopes Grizzly Research Project (Banff National Park), both of which include Parks Canada staff, industry, government and university partners;
- some parks are acting as a focus of scientific research in a particular scientific field, such as Jasper (natural disturbance regimes in the boreal forest) and Kejimikujik (long range transport of pollutants);
- the Columbia Mountains Institute of Applied Ecology associated with Glacier National Park;
- many parks have scientific advisory committees composed of scientists from universities and other government departments; Elk Island National Park is an example. These committees review research proposals, help set the parks research agenda and advise on issues such as ecological monitoring;
- a few staff in parks, Service Centres and the National Office have adjunct professor status at universities and have graduate students;
- the excellent ongoing connection between the University of Sherbrooke and Kouchibouguac National Park.



Despite these good examples the level of connection to external research is patchy and inconsistent. Even where

National park research permits present another barrier. We noted several problems:

Parks Research Forum of Ontario

With considerable foresight and seed money from Parks Canada, Ontario Region, people from federal, provincial and municipal governments, universities, non-governmental organizations and the private sector met near Peterborough, Ontario in 1996, to establish communication and collaboration among parks and protected areas researchers. They agreed to an ongoing forum and the annual Parks Research Forum of Ontario was born. It is sponsored by national parks in Ontario, Parks Canada and three universities, and organized by the Heritage Resources Centre, University of Waterloo.

The goal of the Forum is, broadly, to encourage a wide range of research in the natural and social sciences that applies to parks and protected areas, to:

- improve understanding, planning, management and decision-making for parks and protected areas;
- encourage educational and training activities relating to parks and protected areas;
- facilitate co-operation in parks and protected areas research.

The Forum hosts state-of-the-art workshops and publishes the proceedings of their meetings.

With a relatively modest initial investment, Parks Canada stands to reap large returns in terms of cultivating partnerships and sharing technical advice that Parks Canada could not otherwise afford and which will facilitate management of national parks in the context of greater ecosystems.

there is a good connection, many of these studies are not integrated into the general understanding of ecological integrity, management decisions, or Park Management Plans.

The Panel noted many barriers to more active partnerships with external scientists. Certainly one of the most pressing is the availability of research funds. Presently there is not a pool of dedicated funds for "Protected Areas" research in any of the federal granting agencies, although Natural Science and Engineering Research Committee (NSERC) has targeted funds for research on climate change and biodiversity. This may offer opportunities to university scientists for future park-based research. An initial barrier is matching research interests to park needs. It is currently very difficult for researchers to find out about national parks' research needs. The Service Centre in Cornwall, Ontario, took the initiative of putting information about

research in Ontario's national parks on a web site. Such actions raise the profile of national parks among researchers and graduate students.

- once a researcher decides to work in a national park, there is often confusion over the need for a research permit. At present, research permits are offered on a park-by-park basis, and there is inconsistency over how to apply and what type of research is permissible; there is no national standard for what type of research is acceptable. Researchers report that they often receive arbitrary determinations of what is appropriate, based on individual park managers' perceptions;
- there is no mechanism for a researcher to apply for a multi-park research permit — a researcher must make multiple applications and often receives different answers from different parks;
- researchers do not feel welcome. Most parks cannot offer physical support for research, such as accommodations or laboratory facilities. Many researchers can not afford to carry out research without these facilities. Most parks have not even taken basic steps to facilitate researchers, such as providing information kits for researchers on data availability, or brochures on how to apply for a research permit. While national parks make extraordinary efforts to welcome many types of visitors, researchers commonly find themselves being regulated rather than welcomed. To be fair, research is often carried out during peak summer seasons when park resources and personnel are stressed, and thus researchers can be disruptive to park operations.



Co-operative Ecosystem Study Units

An interesting development in the United States is the recent establishment of Co-operative Ecosystem Studies Units (CESU – see <http://www.cesu.org/cesu> for more information). The U.S. National Park Service, in partnership with the U.S. Forest Service, U.S. Geological Survey, Department of Energy, and others, has established the CESU network in four biogeographic areas throughout the U.S., involving 20 universities in 13 states. The vision is to develop an innovative way for federal agencies and universities to work together to deliver sound scientific information to federal resource managers.

One of the best assets that national parks can offer to researchers is a comprehensive biophysical and social science database. While most national parks have at least partial databases, they are generally not easily accessible to researchers. Some parks have worked to make their data available, but generally a researcher must contact the database manager or geographic information system specialist personally and request custom information, resulting in delays and frustration. Most parks do not have data catalogues and data sets that are accessible through easy formats such as the Internet. Providing easy accessibility to park data would enhance research opportunities and be a net benefit to the park.

A lack of simplified funding arrangements to provide support to researchers and graduate students is another barrier. We noted these problems:

- there is usually no carryover beyond a single season, as funds have not been allocated on a multi-year basis. This creates problems for the multi-year funding needed to support graduate students;
- currently, support for university researchers is most often through contracts, which presents several difficulties:
 - contracts are inflexible, usually requiring deliverables (results, reports, and so on) at prescribed times;

- universities usually take a percentage of the contract funding to cover overhead costs. Research overhead varies from 15% in some western provinces to 65% in Atlantic Canada;

- government contract rules stipulate that all information collected is the intellectual property of the Crown.

Funds provided as grants (as opposed to contracts) are not subject to university overhead and allow researchers needed flexibility.

At present, there are a number of separate agreements between Parks Canada and universities. These arrangements generally take the form of a memorandum of understanding and provide a general model for co-operation but the agreements are extremely variable. From 1983-1993 the University of Waterloo (Heritage Resources Centre) and Parks Canada had a formal agreement that allowed for staff exchange. This arrangement generated numerous research studies, as well as national park staff training and outreach. Although this successful co-operative venture was beneficial for Parks Canada, it was a casualty of Parks Canada budget cuts.

Parks Canada also has historical and current linkages with researchers in other federal departments, such as Natural Resources Canada. Currently there are no memoranda of understanding between Parks Canada and these departments or even key sections of these departments, such as the Canadian Forest Service or the Canadian Wildlife Service. While some level of joint work and co-operation is ongoing, these relationships could be considerably strengthened through formal linkages. Relationships with other agencies — such as federal, provincial and territorial museums for taxonomic expertise, and Statistics Canada for data management — need to be established. Parks Canada should





In Pacific Rim National Park Reserve, Aboriginal knowledge could help park managers protect ecological integrity. P. Wilkinson

Industry Leadership

Parks must become centres of learning and study of ecological processes to provide answers for those who wish to manage in the best ecological way possible. Parks must create research groups in partnership with universities and industry to build the body of knowledge necessary.

*industry association,
submission to the Panel*

consider support for taxonomic facilities, such as the Canadian Museum of Nature, as taxonomic expertise is becoming severely limited within Canadian institutions, but Parks Canada's need for taxonomic validation will increase in the future.

There is also potential for a major partnership with the Canadian Biodiversity Office, whereby national parks can act as centres of understanding of changes in biodiversity in Canada. Currently, Environment Canada has a nation-wide network studying impacts of climate change, with a large Climate Change Action Fund. A target area is "Science, Impacts and Adaptation." National parks would be obvious candidates as benchmarks in this national system to assess climate change impacts.

Another important source of information on ecological integrity is the conservation expertise of Aboriginal peoples and environmental non-governmental organizations such as the Canadian Nature Federation, the Canadian Parks and Wilderness Society, and World Wildlife Fund. Many Aboriginal peoples and non-governmental organizations are keenly interested in contributing to national park management and ecosystem conservation. Although

there have been some attempts to incorporate Aboriginal knowledge, integration has had little success throughout Parks Canada. Parks Canada has made more progress in working with non-governmental organizations, but overall this remains an untapped area of expertise.

Resource industries, such as forestry and mining, are actively promoting the importance of protected areas to provide benchmarks against which to evaluate extraction or reclamation activities, and have participated in numerous initiatives promoting sustainability (Chapter 9). These industries have expertise, data bases, specialized technologies and an interest in co-operative science. National parks could benefit from partnerships with industry.

Parks Canada must raise its profile as a science-based research agency to improve its access to external science capacity, but first Parks Canada must upgrade its internal science capabilities so the organization can be a more effective participant in the larger scientific community. There will always be a need for external scientific expertise to deal with the range of issues relevant to ecological integrity. However without significantly upgrading its internal scientific capacity, Parks Canada will be unable to ask the correct questions, evaluate external research or know the best external resources to contact for a particular issue.



RECOMMENDATIONS

4-3. We recommend that Parks Canada significantly increase formal contact with Canadian universities by establishing a system of 10 co-operative study units specializing in ecosystem science and protected area management (estimated cost \$3 million per year, Chapter 13).

These units should include partnerships with conservation-mandated agencies such as Environment Canada, Canadian Forest Service, Canadian Wildlife Service, as well as appropriate provincial and territorial agencies. Parks Canada should seek to establish Chairs of Protected Area Management including ecological integrity, human dimensions, and interpretation, financed through the creation of new research Chairs announced in the October 1999 federal Speech from the Throne.

The role of these co-operative study units would be to connect Parks Canada to the larger research community, provide science advice to park managers, provide training for Parks Canada staff, and conduct high quality research on key issues. The development of co-operative study units could be further enhanced by:

- inviting universities to submit proposals to a national program, which would be partially funded by Parks Canada. Host universities should be chosen from those that have a diverse faculty with a commitment to conservation research, a history of Parks Canada involvement, and a supportive administration willing to modify accounting and tenure practices to ensure the unit's success. Each university participating in co-operative study units would have a Unit Chair who would be jointly supported by Parks Canada, its partners and the host university, with respect to salary and grants to support research and students;
- creating a new National Science Advisory Committee, headed by the National Science Advisor or Director General of Ecological Integrity (Chapter 2) and including the Unit Chairs;
- forming partnerships with other relevant conservation-oriented governmental and non-governmental agencies with mutual interests (such as Environment Canada, Natural Resources Canada, North American Wetlands Council of Canada, Model Forests, World Wildlife Fund) in supporting co-operative units. This approach has been used successfully by the United States National Park Service;
- inviting Aboriginal peoples to be an integral part of co-operative units, to provide expertise and open lines of communication through joint understanding of park ecosystems;
- emulating existing successful models, including the NSERC/SSHRC Industrial Chair program. A possible template could be the NSERC Industrial Chairs sponsored by the Canadian Wildlife Service (Environment Canada), which resulted in the Atlantic Co-operative Wildlife Ecology Research Network.



4-4. We recommend that Parks Canada facilitate contact with the larger university and education community by:

- amending Parks Canada's financial procedures to allow grants to university graduate students and researchers, as opposed to contracts;
- establishing a student internship program to provide seed funding for research in protected areas and increase the profile of Parks Canada to all students (39 graduate internships — one for each existing park — of \$10,000 each, and 39 university and high school internships of \$3000 each for a total cost of approximately \$500,000/year. This figure will increase as new parks are added to the national system);
- requiring all parks to post updated lists of their key research needs on the Internet;
- revising the current national park research permit to create a nationally standard document with clear rules and procedures designed to assist researchers, and recognize the regional Service Center as the official links with universities;
- having accessible and well-documented data bases for use by external researchers;
- using the proposed "Exchanges Canada" presented in the October 1999 federal Speech from the Throne to introduce students to parks throughout Canada.

4-5. We recommend that Parks Canada re-establish and/or revitalize memoranda of understanding or research agreements with government research agencies to expand research capacity and ensure that joint projects receive stable funding.

4-6. We recommend that Parks Canada establish partnership agreements with interested Aboriginal peoples, enabling national parks to co-operate with Aboriginal peoples to increase knowledge and understanding of ecological integrity in national parks and historic sites.

4-7. We recommend that Parks Canada work with partners in provincial, territorial, and municipal park systems, universities, non-governmental organizations and the private sector to collectively fund the systematic establishment of regional science advisory committees, and to participate in annual "Parks Research Forum" series across Canada, based on the Ontario model.



CHAPTER 5: THE NEED FOR ACTIVE MANAGEMENT AND RESTORATION



Restoring the role of fire in
national parks.
J. Pleaus/Parks Canada

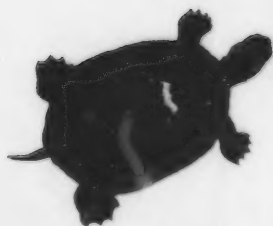
Parks Canada's Guiding Principles and Operating Policies state that ecosystems should evolve in the absence of most human intervention. However, a policy of laissez-faire management in national parks may undermine ecological integrity, especially if past actions are not considered. In order to compensate for past actions, active management may be required to restore processes or species within national parks.

Active management should occur where there are reasonable grounds that maintenance or restoration of ecological integrity will be compromised without it. Because of the difficulty in predicting ecosystem response, active management should be undertaken in national parks using adaptive management techniques.

Changing Ideas, Changing Approaches

Active management covers a range of possible actions in such areas as fire restoration, periodic flooding, restoration of key disturbances, species re-introduction, management of harvested species, and management of hyperabundant native or non-native species. At the extreme end of the scale active management may involve restoration of entire communities, such as a tall grass prairie ecosystem.

Generally speaking, management of ecosystem processes within national parks has been minimal. But laissez-faire management can be inconsistent with a goal of maintaining or enhancing ecological integrity. Although Parks Canada's Guiding Principles are clear on the need for active management, it has been a difficult concept to put into operation across the national park system and currently there is little consistency in approach.



National park ecosystems will be managed with minimal interference to natural processes. However, active management may be allowed when the structure or function of an ecosystem has been seriously altered and manipulation is the only possible alternative available to restore ecological integrity.

Parks Canada, Guiding Principles and Operational Policies (1994)

Some landscapes in which parks are situated, especially in southern Canada, have been highly altered from their historical condition. Active management may be needed to allow species or ecosystems to persist in parks where otherwise they might be lost. To the extent that a park may be the last stronghold for a particular species, if lost from the park that species could be lost from the larger region, too. Thus, if parks are to include species and ecosystems characteristic of the surrounding natural region, park landscapes and species populations may have to be actively managed in order for certain species to persist there.

The influence of Aboriginal traditional activities has largely been eliminated from national parks in the southern and eastern portions of the country, less so in western and northern parks. Re-integrating Aboriginal traditional uses to national parks may mean a larger role for Aboriginal use of fire, harvesting and other activities that essentially constitute "active management."

An Adaptive Management Approach

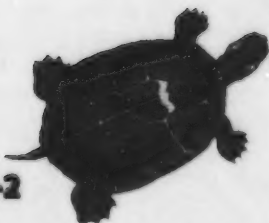
Active management requires a firm, rational foundation for undertaking actions in such potentially controversial areas as fire restoration or controlling hyperabundant species. Because ecological systems are complex, there will typically be debate about why changes are occurring and whether or not such changes are detrimental to ecological integrity. To avoid gridlock due to the continuing argument over whether or not action is warranted, we suggest the use of an adaptive management approach.

Under an adaptive management framework, actions can be taken simultaneously with testing the hypothesized effects on ecological integrity. Through feedback, results of the actions can be used to adapt or change future actions for improved results.

RECOMMENDATION

5-1. We recommend that Parks Canada formally reaffirm that active management is an important part of conserving ecological integrity in all national parks. Active management can be used as a fundamental conservation tool as long as the following conditions are met:

- the goals for active management are explicitly defined and reviewed by knowledgeable persons;
 - active management occurs within the context of an adaptive management framework;
 - the active management program is formally evaluated at fixed intervals.
-



The peregrine falcon has been
re-introduced in Fundy
National Park.
M. Burzynski/Parks Canada



Parks Canada and Active Management: Successes and Challenges

The Panel heard of many areas where Parks Canada has carried out successful active management, as well as some ongoing challenges. Here are some examples:

- abiotic processes – many older national parks are left with an historical legacy of flood control, with many dams and created channels that have altered key natural flow and flood regimes. Prince Albert National Park recently removed a dam on the Kingamere River. This action will restore biodiversity to a section of flooded rapids. Challenges still remain. For example, in Waterton Lakes National Park there is an active delta at the north end of Waterton Lake. Frequent flooding has formed a mosaic of grassland, cottonwoods and willow. For decades, the park has tried to control the flooding process in order to maintain a road in the area. Active management is required to remove the flood control structures and allow the area to return to its highly dynamic state.

- species re-introduction – Parks Canada has engaged in species re-introductions across Canada and has had many successes. Peregrine falcons now have a healthy population in the Bay of Fundy area, after Fundy National Park successfully released 87 young falcons in the 1980s. Southern flying squirrels were successfully re-introduced to Point Pelee and pine marten to Riding Mountain. Swift foxes are currently being re-introduced to Grasslands National Park.

Other re-introduction programs have been unsuccessful, such as caribou in Cape Breton Highlands National Park, bison in Jasper and Atlantic salmon in Fundy. Re-introductions are difficult, requiring sound knowledge of the biology of the species, why the species was extirpated in the first place and how people will react to its renewed presence. In most cases, species re-introductions are greeted with public enthusiasm. However, some potential re-introductions, such as wolves or rattlesnakes, will require more social science information than biological information.



Restoring Fire — Righting 50 Years of Active Suppression



La Mauricie National Park has an active fire restoration Program. J. Pleau/Parks Canada

Fire management is a unique problem for park managers. There is an historical legacy of "Smokey the Bear" informing the public that fires are "bad," in contrast with more recent scientific understanding that fire is an essential ecological process in most park ecosystems. Fire management is a complex activity requiring both fire use and fire control. Despite the positive ecological effects of fire, there is also the very real threat to people, facilities and neighbouring lands.

Fire suppression was identified in the State of Parks 1997 Report as causing significant impact to ecological integrity in 15 national parks. Fire restoration was identified as a key need in the Banff-Bow Valley Study, resulting in a number of targets for "area burned" in the Park Management Plan.

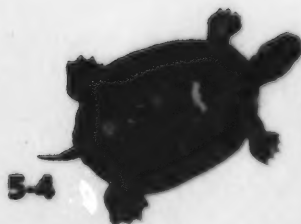
Restoring Fire at La Mauricie National Park

In 1990, La Mauricie National Park organized a workshop that laid the groundwork for the current active fire management program to help maintain fire-dependent plant communities.

This program was developed based on the research on the natural role of fire in the park and the larger surrounding ecosystem, climate data, the current composition of the forest canopy and park fauna. The expertise of numerous partners from federal and provincial agencies and universities also proved to be very valuable. The continuous training of Parks Canada personnel in fire management and behaviour, the acquisition of adequate equipment to follow up on the fire weather index and the staging of controlled burns were essential components in the implementation of this fire management program.

The first controlled burn was carried out in September 1991. To date, the park has been the scene of seven controlled burns covering 180 hectares. Four burns were performed to bring about natural regeneration under old white spruce plantings and three were done to restore the white pine populations that were not regenerating and hence disappearing. A monitoring program was established in each case to determine whether the objectives in the controlled burn plans were achieved.

The active fire management program at La Mauricie is developing continually. Results of each controlled burn can yield surprising discoveries, requiring adjustments to the plans, preparation, staging and monitoring of subsequent burns. This active fire management program is a good example of adaptive management supported by good science.



After 50 years of active fire suppression Parks Canada has recognized the need to restore this ecological process using a combination of zoning and prescribed fire. Prescribed fire has been successfully used in 15 national parks. This is a start on a successful fire restoration program and Parks Canada is showing leadership in this area.

To date, the combination of prescribed fire and naturally-caused wildfire is still at only 10 per cent of the historical long-term average. Parks Canada currently lacks staff, expert control crews and equipment to advance much beyond this level. The internal goal for fire restoration has been set at 50 per cent of the long-term historical average. Under an adaptive management framework, this appears to be a reasonable place to start.

In many parks the historical fire regime was partly the result of Aboriginal use of fire. Aboriginal peoples used fire to create wildlife habitat, maintain grasslands and for other purposes. In understanding a given park's historical fire regime the role of Aboriginal peoples in creating the ecosystem must be considered. In many cases Aboriginal peoples can help Parks Canada understand and use prescribed fire for ecological integrity.

RECOMMENDATION

5-2. We recommend that, in appropriate parks, Parks Canada actively manage to restore fire, within an adaptive management framework, to 50 per cent of the long-term average, using the following means:

- create a fire restoration fund to complete the task of re-establishing this essential natural process to national parks. The level of funding should be based on internal Parks Canada calculations to restore fire to 50 per cent of the long-term average through a combination of prescribed fire and zoning. (Cost: \$6 million per year in addition to the current levels of funding);
- make fire restoration a management accountability by setting fire restoration targets as part of the Park Management Plan in appropriate parks as was done in the Banff Management Plan;
- where possible Parks Canada should work with Aboriginal peoples to understand the history of Aboriginal fire use and its application to prescribed fire.



Species Restoration – Species at Risk



A program to re-introduce
pine martens in Riding
Mountain National Park.
D. McArthur/Parks Canada

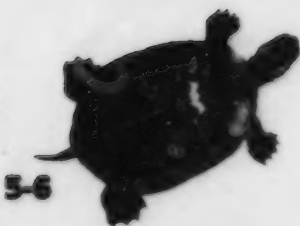
National parks have a long involvement in some aspects of managing species at risk. Parks Canada has long been a member of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which evaluates the status of species in Canada. COSEWIC defines "at risk" species as being vulnerable, threatened or endangered.

While Canada's 39 existing national parks cover a little over 2.5 per cent of the country's area, a majority of Canada's native terrestrial and freshwater vascular plant species (70.6 per cent) and vertebrate animal species (80.9 per cent) are found within Canadian national parks. This is largely the result of the parks' distribution across the length and breadth of the country and the fact that a number of parks are located in species-rich areas. The national parks also contain numerous species at risk: 56.9 per cent of vascular plants and 48.4 per cent of vertebrates

designated by COSEWIC as "at risk" reside in Canada's national parks.

Parks Canada conducts both species restoration and species re-introduction programs. Programs include re-introduction of peregrine falcons, pine martens, trumpeter swans and flying squirrels. Some of the re-introductions have been very successful and Parks Canada can be proud of its efforts. However, species re-introductions are complex and need to be understood in an ecosystem context, and should be conducted within an adaptive management framework. For example, Point Pelee National Park, the Friends of Point Pelee National Park and the University of Guelph co-operate to conduct annual census of flying squirrels introduced to the park, to simultaneously restore the species and to test hypotheses about factors that affect small populations. Questions such as "Why did the species disappear in the first place?" and "What will be the implications of returning the species?" require careful consideration. Often Parks Canada lacks the capacity to conduct such detailed evaluations.

At the time the Panel was preparing this report there was a large national effort to develop legislation for managing species at risk in Canada. The legislation arising from this effort could have profound implications for national parks and species restoration. Parks Canada currently lacks the capacity to take on additional responsibilities for species at risk. The Panel is concerned that new responsibilities may be added through Species at Risk legislation without additional resources being allocated within Parks Canada.



RECOMMENDATION

5-3. We recommend that Parks Canada be active in species restoration and that Parks Canada must have the required new resources.

Site Restoration

There are many degraded sites within national parks that require active restoration. Examples include gravel pits, old roadbeds, abandoned military installations (Distant Early Warning [DEW] Line sites), old clear cuts and other logging sites, farms and housing sites. In the mountain parks alone, the Panel was told there are more than 100 abandoned gravel pits. Parks Canada does not have a formal policy on site restoration and it is unclear how much restoration is sufficient for a given site or disturbance.

In most parks these sites are simply abandoned and natural revegetation is occurring slowly, but there are problems with this laissez-faire approach. In the absence of site restoration, which normally includes re-establishing natural landscape contours, features such as ditches or roadbeds remain. Abandoned sites are often places where non-native plant species can thrive. At some sites there are toxic wastes

that must be remedied or accumulations of waste, such as oil drums, that must be removed. In some cases, parks have done partial site restoration, such as replanting gravel pits without re-contouring.

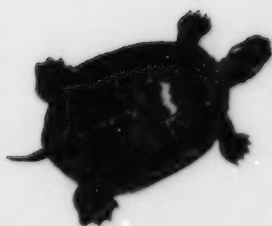
Aquatic ecosystems, both fresh-water and marine, are also in need of site restoration. Many parks have old dams that block fish movement or change hydrological regimes. In the older southern parks it is difficult to find a park without existing dams; in the State of Parks 1997 Report, 18 parks reported significant ecological impacts from dams. Other types of sites in need of restoration include abandoned wharves and submerged log piles left from log driving.

The Panel was told that funds for site restoration are often lacking. Restoration is often not seen as an immediate priority and generally loses out to more pressing needs.

RECOMMENDATIONS

5-4. We recommend that Parks Canada establish a set of guidelines for site restoration, in order to guide the many questions that remain at the field level regarding restoration. The guidelines should include targets for acceptable levels of toxic substances, restoration of landforms and hydrological patterns. The guidelines should also include guidance of the removal or remodeling of historical structures in order to meet site rehabilitation needs.

5-5. We recommend that Parks Canada establish a dedicated site restoration fund of \$5 million per year to ensure that funds are available and that restoration is not directly competing with other immediate priority issues. The fund should be allocated based on a national priority list for site restoration in national parks. As there are a limited number of sites that need restoration, the fund can be re-evaluated after five years to see if it has met its objective.



Dealing With Alien Species



Brome grass, an alien species, is invading native rough fescue communities in Riding Mountain National Park.
Parks Canada

The majority of national parks in southern Canada report that "exotic" or "alien" organisms (invertebrates, fish, birds, mammals, vegetation and micro-organisms not native to the park) are causing significant ecological impacts. For example, in the State of the Parks 1997 Report, 21 of 38 parks indicated that alien vegetation represented a major stress, though it is not always clear whether there is sound evidence of deleterious ecological effects. Currently, Parks Canada does not have the scientific capacity to evaluate the nature of ecological effects and as a result may waste precious resources

managing alien species that are not invasive and are not causing ecological damage.

Several parks have successfully removed invasive alien organisms that threatened ecological integrity. Gwaii Haanas National Park Reserve successfully restored native vegetation on a few offshore islands by eliminating introduced mammals (black-tailed deer, raccoons and Norway rats). Although there are currently many efforts underway to eliminate alien species from national parks, most park managers are unsure about what constitutes an "alien" species, and when such species should be of concern. Most park managers have not developed a priority list of alien species, nor have they established a list of appropriate control actions.

Understanding the effect of alien species on the ecological integrity of protected areas, especially under conditions of projected climate change, is of global importance. The spread of alien species is predicted to increase dramatically, but present federal and provincial legislation and regulations do not address this concern. Invasive alien organisms are known to negatively affect biodiversity, and are of concern to all levels of government under the Biological Diversity Convention signed by Canada.



Parks Canada has done some policy development in the area of alien species but there is no national policy. An existing report written by Mosquin (1997) could form the basis for a policy. The first step in developing sound management strategies for invasive alien species is to develop a clear definition. The definition of an "alien organism," developed by the Alien Species Focus Group, Environment Canada 1994 (in Mosquin 1997) is: *"An alien species is one that enters an ecosystem beyond its historic range, including any organisms transferred from one country or province to another."*

This definition, modified from the United States National Park Service, implies no positive or negative impact by the alien organism. The definition includes organisms entering through natural range extension and dispersal, through deliberate or inadvertent introduction by humans, and as a result

of habitat changes caused by human activity. Alien species do not necessarily impair ecological integrity, so a further distinction is warranted, to the effect that "alleged negative effects of invasive species are evaluated and demonstrated, in order to aid prioritization of alien species designated for active management."

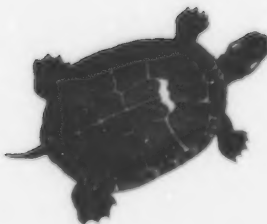
Determining the effect of alien species on ecosystem structure and function is imperative. Many alien species, especially plants, are relatively benign — they do not invade and alter native ecosystems. From a management perspective it would be most efficient to be able to predict the probability that a newly detected alien would invade and damage native ecosystems. Unfortunately there is currently no way of predicting how invasive an alien species may be. Only early detection via monitoring, with an evaluation of ecosystem effects, can determine whether a species should be removed.

RECOMMENDATIONS

5-6. We recommend that Parks Canada develop a national policy and guidelines on the definition of invasive alien species and appropriate criteria for control and removal methods.

5-7. We further recommend that Parks Canada improve the management of alien species by working with local experts, museums, universities and other government departments to routinely monitor for new species invasions. In addition, improved manage-

ment of alien species will result from implementing recommendations made in Chapter 12 concerning the elimination of non-native plant species in parks. To foster public support for the elimination of alien plant species from national parks, we recommend that Parks Canada design and implement interpretive programs and other information as recommended in Chapter 10.



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Harvesting



Sport fishing is the only form of harvest that is currently legal in all national parks.
Jean Audet/Parks Canada

Most Canadians assume that national parks are protected from harvest or resource extraction. In reality, most parks have active harvest or extraction. The most common type of harvest is sport fishing. Fish are the only organisms that can be legally harvested in national parks by any park visitor. Most other harvest or extraction activities are based on the recognized rights of First Nations, or are based in individual park establishment agreements.

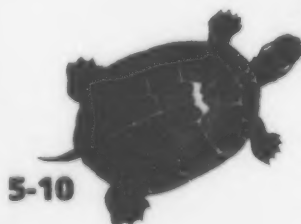
Active harvest of a population requires scientific capacity to provide an ongoing assessment of the population levels, age-specific birth and death rates, an understanding of environmental variability, and a model projecting populations over time. This information is rarely, if ever, available for harvest or extraction in national parks. Even for sport fishing, with the exception of La Mauricie National Park, we found no comprehensive assessment of fishing pressure on fish populations.

The Panel recognizes that Parks Canada does not fully control the harvest of some organisms, especially in the North where Parks Canada works through wildlife management boards and similar arrangements with First Nations. However, even in these areas Parks Canada can be a voice for establishing sound harvest levels, based on ongoing population assessments, harvest assessments and the creation of benchmark areas where no harvest occurs. Additional discussion on the topic of Aboriginal harvest is in Chapters 7 and 11 of this report.

Figure 5-1. Harvest in National Parks

Type of Harvest or Extraction	Number of Parks Reporting Harvest
Sand and gravel for park construction	5
Aboriginal harvesting	8
Non-Aboriginal wildlife (non-fish) harvest	6
Commercial logging	22
Commercial fishing	4
Commercial mining	10
Domestic grazing	5
Commercial fishing	1

State of the Parks 1997 Report



Harvesting



Sport fishing is the only form of harvest that is currently legal in all national parks.

Jean Audet/Parks Canada

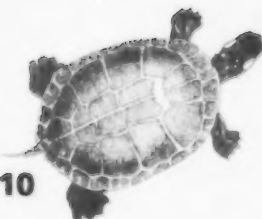
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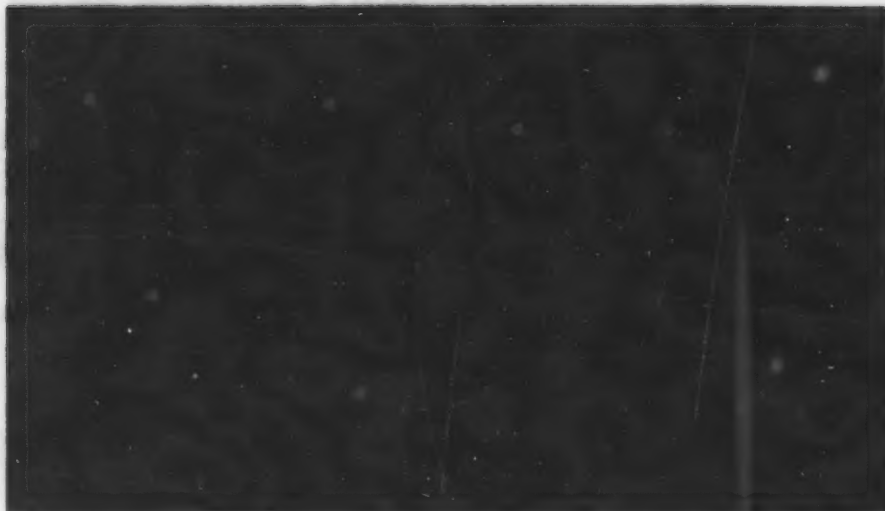
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Figure 5-1. Harvest in National Parks

Type of Harvest or Extraction	Number of Parks Reporting Harvest
Sand and gravel for park construction	5
Aboriginal harvest	8
Non-Aboriginal wildlife (non-fish) harvest	6
Sport fishing	22
Commercial fishing	4
Problem or surplus wildlife	10
Domestic grazing	5
Domestic wood harvest	1



Rabbit snaring is allowed under the park establishment agreement for Gros Morne National Park.
P. Wilkinson



The Panel notes that the recreational harvest of native fish in national parks is an anomaly, and is inconsistent with protecting ecological integrity. Just as most national park users are forbidden to hunt or gather, there is no justification in terms of ecological integrity for the recreational harvest of native fish in national parks. There are many other areas outside national parks where

fishing is permitted. By permitting fishing, parks cease to be true ecological benchmarks for comparison with areas outside of parks where harvesting is allowed. Currently, the time spent by parks staff in regulating sport fishing appears to be a drain on scarce resources, both time and money, that could be better spent elsewhere.

RECOMMENDATION

... sport fishing is permitted in parks where fish populations are large enough to sustain some harvesting without compromising viability.

State of the Parks 1997 Report, p. 31

Sport fishing is reported to be negatively affecting fish populations, and causing changes in genetics and the structure of fish community in 19 parks, including the majority of southern national parks.



5-8. We recommend that Parks Canada establish guidelines for the management of any harvested populations in a park. We recommend that no harvest be allowed to occur unless these guidelines are met and that any harvest under the jurisdiction of Parks Canada that does not meet these principles should be discontinued. We note that some harvest regimes within some national parks are not under the jurisdiction of Parks Canada and thus Parks Canada could advocate a position in these cases.

We recommend the following principles for harvesting within national parks:

- all harvest levels should be based on an ongoing assessment of basic population parameters, including population size, sex ratio, age class distribution and age-specific birth and mortality rates;
- all harvested population should have an ongoing assessment of age-specific and sex-specific harvest rates as well as location;
- for all harvested populations, there should be areas of the park where harvest is not permitted, designed to act as benchmark areas.

Managing Hyperabundant Species

Elk in Banff townsites are habituated to humans, but remain wild and dangerous.
Blackbird Design

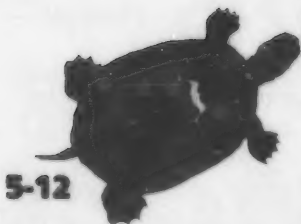


Species can be defined as hyperabundant when their numbers clearly exceed the upper range of natural variability that is characteristic of the ecosystem, where there is a demonstrated impact on ecological integrity. This can happen when predators are removed from the ecosystem, or when there is a food subsidy, such as available garbage. Species present in extreme high numbers can have profound effects on other species. For example, Kejimikujik National Park reported high levels of predation by hyperabundant raccoons on nests of rare Blanding's turtles.

Some parks have lost key species and such losses, in turn, affect other species. One view holds that reduced abundance of large carnivores such as wolves has led to hyperabundant populations of such prey species as elk and moose, and to significant changes in the abundance of other species. For example, the park communities of

Banff and Jasper have serious problems with town-adapted elk resulting from a dysfunctional predator-prey system — with resulting impacts on vegetation. Other species may be hyperabundant because parks, as last enclaves, afford protection. Large populations within a park may be subsidized by extensive alternate food sources outside of the park. This is the case with deer in southern Ontario. In Gwaii Haanas, deer were introduced to islands with both abundant food and few predators.

In several parks, Parks Canada routinely manages hyperabundant populations. For example, there is a well-developed program in Elk Island National Park to remove bison and elk from the park, to keep populations of these animals down in the absence of predators and other natural controls. Despite these successes, many park managers have been reluctant to engage in such intense management.





White-tailed deer are hyperabundant in some national parks. A. Cornellier/Parks Canada

Deer Management in Point Pelee National Park

Many protected areas in southern Ontario report problems caused by abundant white-tailed deer, regardless of what might have caused increases in deer populations in the first place. Compared to provincial parks, like Long Point, Rondeau or Grand Bend, or the National Wildlife Area on Long Point, Point Pelee National Park has been singularly successful in reducing locally abundant deer in the park through a series of culls conducted over several years with minimal public outcry. There are several reasons for the park's successful management of deer:

- park management clearly articulated their vision of ecological integrity in a way that the public could accept, highlighting that high deer populations are inconsistent with protecting ecological integrity. The park is intended to be, so far as is possible, representative of a functioning Carolinian ecosystem.
- park staff conduct the cull and the park is closed during the cull. Park management has not submitted to pressure from groups claiming that they can do the cull at less cost; to allow a cull by non-park staff would be a first step on the slippery slope to introducing a non-conforming use to the park (hunting) and would lead to confusion among interest groups and the general public about whether a cull conducted by non-staff is sport hunting or not.
- Point Pelee management strategically invested aggressively in research into alternative methods of control, indicating clearly that they were aware of public sensitivities regarding the shooting of deer.

RECOMMENDATION

5-9. We recommend that Parks Canada confirm the role for control of hyperabundant species in national parks through active management, to maintain or restore ecological integrity, as long as the following conditions are met:

- the reasons for the hyperabundance are well understood;
- there are clear objectives and numerical targets for the control program;
- the impacts of the control measures are predicted;
- there is a monitoring system in place to examine the causes of hyperabundance, the dynamics of the population being controlled and the predicted impacts of the control measures;
- the management program is conducted under an adaptive management framework where the original assumptions are subject to review.





CHAPTER 6: TOOLS FOR UNDERSTANDING AND ASSESSING ECOLOGICAL INTEGRITY



Tracking black bears in Riding Mountain National Park
C. Davari/Parks Canada

Assessing and understanding ecological integrity requires three interrelated tools: inventory, research and monitoring. Understanding ecological integrity is a complex task that will require significant investment in expertise as

well as internal training. Parks Canada is already well along the road to an operational understanding of ecological integrity and has an opportunity to take on a leadership role in understanding the state of Canada's ecosystems.

Inventory, Research, and Monitoring

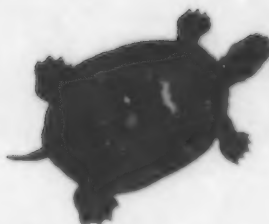
Inventory, research, and monitoring are interrelated parts of the same process, that of learning.

Inventory is a record of the state or condition of an ecosystem at a given point in time. Inventories provide baseline information on variables that change slowly, including topographic features, hydrological patterns, and species lists. Information gained through inventory is basic to managing ecological integrity.

Research is process by which hypotheses are generated and tested. Parks Canada is involved in two kinds of research:

- research oriented toward specific questions relevant to managing parks, done by park staff, a university or research agency;
- research conducted by external researchers and generally not oriented toward a specific park management concern or interest.

Monitoring is repeated observation, through time, of selected parameters to determine the state of systems. Monitoring provides information about complicated and complex systems and the effects of disturbances on those systems. Monitoring serves as an early warning mechanism to trigger management response or further research. The



The intent of research and monitoring are already well-developed in Parks Canada's Guiding Principles and Operational Policies:

Principle 6. Management decisions are based on the best available knowledge, supported by a wide range of research, including a commitment to integrated scientific monitoring.

Parks Canada requires applied and basic research and monitoring activities to make responsible decisions in its management, planning and operating practices, as well as to broaden scientific understanding.

Operational Policy 3.0. Management must be guided by the establishment of clear, practical and measurable objectives that are consistent with the park management plan and by the rigorous application of science in the collection and interpretation of research and monitoring data.

Parks Canada, Guiding Principles and Operating Policies (1994)

key purpose of monitoring is to serve as the feedback mechanism that provides information on ecological integrity and to assist in determining whether or not a specific management action or policy has implications for ecological integrity.

Specifically with regard to national parks, the purpose of monitoring is:

- to track progress towards the maintenance or restoration of ecological integrity;
- to assess the effectiveness of specific management actions or policies;
- to incorporate acquired information and understanding into planning and management cycles;
- to identify more specific research needs;
- to serve as a tool to hold park managers accountable for progress towards achieving ecological integrity.

Aboriginal peoples have a large role in helping Parks Canada to incorporate naturalized knowledge in conducting inventories, research and monitoring in national parks.

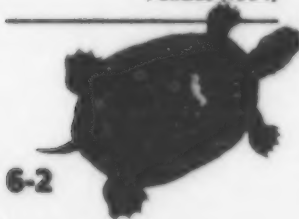
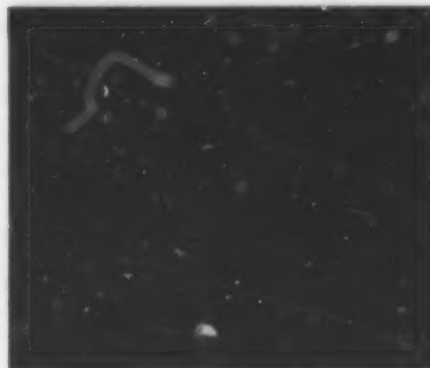
Ecological Inventories

Ecological inventories are baselines for understanding the state of ecological integrity within national parks. We noted several problems respecting ecological inventories:

- Parks Canada had a sophisticated resource inventory program in the 1970s and early 1980s and was a leader in the field of ecosystem-based inventorying. Much of this information is now outdated. In particular, most of the southern parks have inventories but these are outdated;

- very little basic inventory is being done on new parks in northern Canada. Newly established parks have no program for creating ecological inventories, except to consolidate information that exists in universities and other government files;
- there are no guidelines for what type of inventory is required or when inventories become dated and need to be re-done;
- inventory methods are different between parks and it is often impossible to compare basic information, such as vegetation cover, between parks;
- lists of even the best-studied species, including mammals, reptiles, amphibians, birds and vascular plants, are incomplete in most parks;
- ecological inventories are not currently conducted as part of new park establishment because of lack of funds. Parks Canada lacks solid ecological information for negotiating park establishment agreements, including establishing park boundaries.

Research in La Mauricie
National Park
J. Pleau/Parks Canada



RECOMMENDATIONS

6-1. We recommend that Parks Canada develop national guidelines for ecological inventories: inventories specifying the type, scale, resolution and frequency of the information required. All parks should then review their current inventories against these guidelines.

6-2. We recommend that Parks Canada incorporate the costs of developing an adequate ecological inventory as part of new park establishment. As

a general rule, the average cost of an inventory will be approximately \$250,000 per park to cover a basic inventory of vegetation, topography, linear features, invertebrates and vascular plants. There are currently 14 unrepresented natural regions and five northern parks with inadequate basic inventories. The total cost to complete a basic inventory of each of these (14 new parks and five existing northern parks) would be \$4.75 million.

Research

Parks Canada attracts some excellent external research and has some excellent internal research ongoing. However, there are considerable obstacles to properly developing and managing research, which are covered under the sections on internal and external science capacity in Chapter 4.

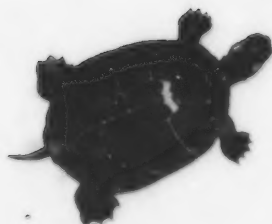
Currently, Parks Canada lacks the capacity and flexibility to research key questions as they arise. For example, an Agriculture Canada proposal to destroy the entire population of bison from Wood Buffalo National Park left Parks Canada groping for an adequate response. Parks Canada did not have the capability or the financial flexibility

to quickly respond and to develop a research program to deal with the issue. A more recent example is the discovery of tuberculosis in elk populations in and around Riding Mountain National Park. Park staff have made heroic efforts to manage the issue but are hampered by a lack of funding and expertise to conduct the necessary research. If Parks Canada upgrades its external and internal scientific capacity, additional resources for research will be required. Parks Canada must also respond to emerging issues in a timely and flexible manner.

RECOMMENDATION

6-3. We recommend that Parks Canada establish an emerging issues research fund of \$1 million per year to deal with threats to ecological integrity that occur outside the normal management

planning and business planning cycles. The National Office should administer the fund, with proposals for access based on peer review and expressed emergency need.



Monitoring Ecological Integrity: Defining a Role

The Panel's definition of ecological integrity is in Chapter 1. Monitoring for ecological integrity is a key issue for Parks Canada. As the steward of Canada's national parks, Parks Canada has an obligation to monitor and assess the state of park ecosystems to ensure they are maintained unimpaired. Parks Canada also has a broader responsibility to evaluate the effectiveness of management actions and policies designed to conserve or restore ecological integrity. We noted several issues that are delaying the development of monitoring programs:

- monitoring requires long-term commitment, adequate resources and stability. Historically, however, monitoring has been seen as an extra, expensive program;
- the important relationship between monitoring and management is not clear. Monitoring must become an integral part of the management process, following the model of adaptive management;

- Parks Canada has devoted significant resources to monitoring activities, but monitoring programs have been driven largely by specific management issues, such as human-bear conflicts, or by the individual interests of park staff or university researchers. Monitoring has provided some useful information to help address specific management concerns but generally it has not provided a clear picture of the overall state of ecological integrity;
- funding for monitoring has been sporadic and methods have changed frequently, weakening the ability to use the information over time;
- monitoring has been patchy throughout the national parks, with some parks having comprehensive programs and others very little.

Changes Needed to the Monitoring Program

The role of monitoring and its utility to management decision-making is not well understood. Monitoring has not been linked to accountability measures. Consequently the design and implementation of a comprehensive monitoring program has not been a priority. This has resulted in several problems:

- monitoring programs are not integrated in planning and management cycles as feedback loops or as accountability tools;
- park managers are not asking for nor using the information from ecological monitoring;
- the linkage between park-level monitoring initiatives and national-level reporting requirements is often unclear. The National Ecological Indicator set, presented in the State

Monitoring the effect of prescribed burning on restoring native rough fescue in Riding Mountain National Park
K. Kingdon/Parks Canada



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- of Parks 1997 Report, is sometimes seen as an addition to existing programs and has not prompted a re-examination of the importance of existing monitoring;
- indicators selected for monitoring often do not appear to be logically related to one another in a systematic way and do not work together as a suite of indicators;
- the integration of park-level monitoring with other agencies' regional-level monitoring initiatives is rare but growing;
- better integration of a range of staff into the ecological integrity monitoring program is needed, especially in the warden service. Warden service staff are well qualified to conduct much of the required monitoring.

Principles, Criteria, Indicators and Targets: A Common Framework for Monitoring

Principles, criteria, indicators and targets have been proposed to provide a common framework for the ecological integrity monitoring processes. A framework can help to break the system into parameters that can be managed, planned for, or assessed. Ideally this hierarchical framework:

- increases the chance of complete coverage of all the important aspects to be monitored or assessed;
- avoids redundancy and limits the set to a minimum without extra parameters;
- results in a transparent relationship between the parameter that is measured and the compliance with the principle and criterion it refers to.

While commonly referred to as "criteria and indicators" (C&I) the framework consists of four major levels. Principles refer to goals; criteria translate these goals into elements of the system; indicators refer to specific parameters associated with the criterion; verifiers (targets) provide a specific measurement method and target or benchmark against which the indicator is assessed.

Example

Principle: Maintain and enhance ecosystem integrity

Criterion: Maintain all native species at viable levels

Indicator: Number of invertebrate species compared with historical values representative of the region

Target: Less than 1% loss of species compared with historical values over a 50 year period.

Figure 6-1. Parks Canada's Assessment Framework

BIODIVERSITY (characteristic of region)	ECOSYSTEM FUNCTION (natural, evolutionary potential)	STRESSORS (unimpaired system)
Species Richness <ul style="list-style-type: none"> - change in species richness - numbers and extent of exotics 	Succession/Regeneration <ul style="list-style-type: none"> - disturbance frequency and size (fire, insects, flooding) - vegetation age class distribution 	Human Land Use Patterns <ul style="list-style-type: none"> - land use maps, road densities, population densities
Population Dynamics <ul style="list-style-type: none"> - mortality/natality rates of indicator species - immigration/emigration of indicator species - population variability of indicator species 	Resilience <ul style="list-style-type: none"> - by site 	Habitat Fragmentation <ul style="list-style-type: none"> - patch size, interpatch distance, forest interior
Trophic Structure <ul style="list-style-type: none"> - size class distribution of all taxa - predation levels 	Recovery Potential <ul style="list-style-type: none"> - by site 	Pollutants <ul style="list-style-type: none"> - sewage, petrochemicals, etc - long-range transportation
		Climate <ul style="list-style-type: none"> - weather data - frequency of extreme events
		Other <ul style="list-style-type: none"> - park-specific issues



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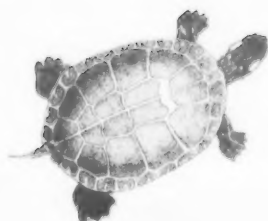
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Target: Less than 1% loss of species compared with historical values over a 50 year period.

Figure 6-1. Parks Canada's Assessment Framework

BIODIVERSITY (characteristic of region)	ECOSYSTEM FUNCTION (resilient, evolutionary potential)	STRESSORS (unimpaired system)
Species Richness <ul style="list-style-type: none"> - change in species richness - numbers and extent of exotics 	Succession/Retrogression <ul style="list-style-type: none"> - disturbance frequency and size (fire, insects, flooding) - vegetation age class distribution 	Human Land Use Patterns <ul style="list-style-type: none"> - land use maps, road densities, population densities
Population Dynamics <ul style="list-style-type: none"> - mortality/natality rates of indicator species - immigration/emigration of indicator species - population variability of indicator species 	Productivity <ul style="list-style-type: none"> - remote or by site 	Habitat Fragmentation <ul style="list-style-type: none"> - patch size, interpatch distance, forest interior
Trophic Structure <ul style="list-style-type: none"> - size class distribution of all taxa - predation levels 	Decomposition <ul style="list-style-type: none"> - by site 	Pollutants <ul style="list-style-type: none"> - sewage, petrochemicals, etc - long-range transportation
	Nutrient Retention <ul style="list-style-type: none"> - Ca, N by site 	Climate <ul style="list-style-type: none"> - weather data - frequency of extreme events
		Other <ul style="list-style-type: none"> - park-specific issues



A New Monitoring Framework

In the State of Parks 1997 Report, Parks Canada adopted a framework for monitoring ecological integrity by adopting an assessment framework (Figure 6-1). The framework is designed such that each park will assess some measures of biodiversity, ecosystem functions and stressors at a range of ecological scales, but the specific components and protocols of each of these is allowed to vary according to local conditions. The Panel endorses this approach as a solid basis on which to proceed. Most parks have adopted this framework, but it has generally not been made operational by the development of specific protocols and measurable targets.

At the park level, implementation of the indicator framework is at various stages. Some parks have developed specific protocols and are working to integrate them into ongoing operations. Other parks have had one-time comprehensive assessments completed (for example, the State of Greater Fundy Ecosystem, State of the Crown

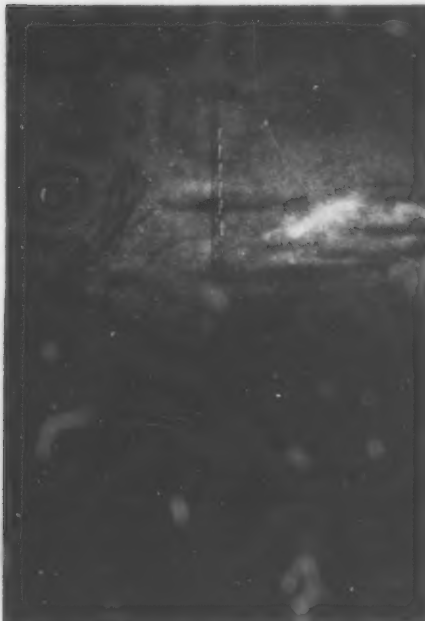
of the Continent (Waterton) and the Banff-Bow Valley Study) but an ongoing operational monitoring program is not yet developed. McCanny et al. (1997) led a large effort to develop protocols for the northern parks, but these have generally not been made operational because of a lack of funding and staff. Even those parks that have protocols in place are still developing targets for measurement. Most parks have identified monitoring in their business plans as an item for upcoming attention or implementation.

Regional Integration and Monitoring Co-ordination

As outlined in Chapters 3 and 9, the Panel strongly advocates planning and management of Canada's national parks within the context of the greater park ecosystem, requiring the development of many regional linkages including monitoring. Monitoring of ecological integrity in national parks should be seen in the context of understanding changes in the larger region in which the park is situated. National parks have a wonderful opportunity to act as a Canadian network of sites that provide information on the ecological condition of Canada, not simply the lands inside park boundaries. This would be a redefined role for national parks.

Currently some parks are participating in programs external to Parks Canada, including regional, national and international monitoring programs. Parks Canada's participation in these programs varies. Parks Canada can both benefit from and contribute to such external monitoring programs to expand understanding of greater ecosystems and to contribute to understanding the state of regional and national systems. National parks can be centres of biological research and monitoring, regionally and nationally.

A weather data collection site
in Wood Buffalo National Park
P. Wilkinson



Some parks have agreed to participate in these programs without a critical examination of the park's role (including financial/resource obligations) with respect to achieving park goals. In some cases, park management has not done a careful review of the applicability of protocols to the scale of decision making, the ecosystem type or the question being asked. For example, several parks have embraced Smithsonian biodiversity plots without being able to show how these fit into an overall monitoring strategy or what questions the plots will answer for the park.

The Need for Atmospheric Monitoring: New Technology Required

One of the significant voids in monitoring in national parks is the almost complete lack of information on atmospheric pollutants. Parks are being affected by acidic precipitation, ground-level ozone and long-range transport of pollutants such as mercury and persistent organic pesticides. However, the information base is incomplete and this deficiency inhibits Parks Canada from gaining a fuller understanding of the nature and magnitude of factors affecting ecological integrity. In the United States, national parks act

Ecological Integrity Monitoring Programming

Bruce Peninsula National Park/Fathom Five National Marine Park

A two-phase Ecological Integrity Monitoring Program has been developed for both these parks. The first phase developed a park-based rationale for the selection of indicators. The second phase described the indicator protocols and provided all essential information, from equipment to analysis.

Indicators were selected that would help achieve the goals of assessing whether native biodiversity, and the processes that maintain native biodiversity, are being protected. To ensure success, screening criteria for the indicator criteria were developed based on these fundamental objectives.

Combined indicators must address all ecological components and scales of biological organization. Protocols must be financially possible. This program was designed to fit within the yearly operating budget, using capital funding only for major expenditures such as satellite imagery purchases. Protocols can be implemented with current staff and staff skill levels. Protocols must be scientifically repeatable.

In the process of implementation and subsequent review and analysis of the protocols, several key lessons were learned:

- park staff have been lost and staffing levels are now inadequate for conducting a full monitoring program;
- some protocols are difficult to establish because the data collection methods are in place but methods of analysis are not;
- it takes time to write, field test and revise protocols. This is a job that needs to be done by staff with strong writing skills, analytical and all-round ecological knowledge;
- protocols must be designed to meet statistical requirements;
- long-term commitment is essential; some protocols require 10 years of data collection before statistically valid changes can be detected;
- good baseline data are essential to apply sound scientific principles. The parks have a lot of data but not all can be used due to validity problems;
- an integrated database is essential for ease of storage and organization, however data must be exportable to ensure redundancy does not affect the parks' ability to do analysis using the most current software.



as benchmark monitoring sites for atmospheric monitoring and there are specific standards for air quality in the parks.

Atmospheric monitoring sites should be established in selected Canadian national parks to cover major ecozones

of Canada, in co-operation with the Atmospheric Environment Branch of Environment Canada. Instrumentation and operating costs would vary but basic parameters should include visibility, particulate, organic pollutants and weather.

RECOMMENDATIONS

6-4. We recommend that Parks Canada integrate monitoring within the management accountability framework. Specifically, we recommend that Parks Canada:

- explicitly recognize monitoring as a tool for adaptive management;
- the lack of a complete suite of indicators or the inability to measure specific indicators (because of methods or costs) are not valid excuses to delay monitoring. All parks should begin reporting on at least some ecological integrity indicators immediately;
- at all levels of Parks Canada, link accountability to both implementation of a monitoring program and the results (outputs) obtained from the monitoring program.

6-5. We recommend that Parks Canada further develop the program for ecological monitoring and assessment in national parks. Specifically, we recommend the following actions:

- appoint a permanent, full-time national Ecological Integrity Monitoring Co-ordinator to assist and guide parks through the development and implementation of monitoring programs (Figure 4-1 in Chapter 4). This must include the development of an on-line catalogue of protocols that can be used by individual parks. Develop customized protocols for each park as needed;

- in each park, review and evaluate existing monitoring programs based on the national monitoring framework to identify current monitoring projects that fit the framework or can be modified to fit the framework and those that should be discontinued;
- base monitoring programs on a hypothesis of how monitored elements will change as a result of stresses;
- re-organize the existing ecological monitoring framework around the model of principles, criteria, indicators and targets;
- develop a clear understanding on which indicators of ecological integrity can be aggregated to national-level reporting; and which are unique to a given park and should be assessed at the park level. Develop corresponding mechanisms for measuring and aggregating these indicators;
- incorporate both quantitative and qualitative techniques in monitoring, as they best fit the measurement of the indicators;
- develop specific methods for incorporating naturalized knowledge and scientific knowledge to improve the comprehensiveness of monitoring programs;
- design monitoring protocols simultaneously with data management and retrieval strategies;
- ensure all monitoring protocols and the design of the basic program are subject to external peer review.



6-6. We recommend that Parks Canada support ongoing regional and national monitoring initiatives with monitoring data at the park level by:

- establishing a dedicated ecological integrity monitoring envelope of \$3.9 million per year to allow parks to proceed with the development of their essential monitoring programs. This will vary from park to park but is based on an average cost of \$100,000 annually for each park;
- working with other agencies, industries, universities, non-governmental organizations, Aboriginal peoples, park visitors and community groups for data collection and reporting. Where appropriate and feasible, design monitoring protocols for application (and in consideration of) across park boundaries and monitor accordingly;
- establishing a resource library of measurement protocols and targets (also called verifiers) for parks within their ecoregion and across regions. Co-ordinate development of meas-

urement protocols and verifiers with other local and regional monitoring programs including provincial and federal state of the environment reporting and local, regional and national state of the forest reporting (such as Model Forest Criteria and Indicator projects).

6-7. Correct the absence of an atmospheric monitoring program by establishing a network of six monitoring stations in national parks, in co-operation with the Atmospheric Environment Branch of Environment Canada.

For sites with no existing instruments, the cost to establish a base monitoring station would be \$200,000. Annual operating costs would be approximately \$150,000 per year including staff. The total program costs would be \$1.2 million for establishment and \$1.2 million per year for operations. If split with the Atmospheric Environment Branch of Environment Canada, operating costs would be \$600,000 for establishment and \$600,000 per year for Parks Canada.

National- and Park-level Reporting

Currently, the status of ecological integrity in individual national parks is combined in the national-level State of the Parks Report. Information for the report is gained through some nationally reported monitoring data and through a questionnaire that is unrelated to park-level monitoring programs. While a new framework to guide monitoring programs has been developed, clear linkages between park-level and national-level reporting, and implications for measurement, have not been determined (Chapter 3).

No Link Between Monitoring and Reporting

With respect to the national State of Parks Report, the Panel observed:

- the Report is a substantial improvement on previous accountability mechanisms for ecological integrity. However the Report needs to be based on more actual measures and monitoring results obtained at the park level;
- State of the Parks Reports are legally required only for reporting the state of ecological integrity in national parks, but these reports are now used as a reporting mechanism for all aspects of Parks Canada. While an integrated reporting mechanism may be desirable, treating the State



of the Parks Report as a broad accountability tool creates potential for a loss of focus on the state of ecological integrity;

- there is no formal data collection for the State of the Parks Report. Any data collection is seen as an "add-on" and most efforts are neither rigorous, nor comparable.

As outlined in Chapter 3, monitoring, evaluation and feedback are essential parts of planning and are consistent with the process of adaptive management but are currently neglected aspects of park planning. Developing a rigorous system for monitoring aimed specifically at preparation of a park-level State of the Park Report and evaluation of the report's results should help to resolve the lack of feedback mechanisms identified in the current park planning system.

As outlined in Chapter 10, communicating the message that protecting ecological integrity is the first priority

of national parks, in part through park-level State of the Park Reports, will help confirm the central role of ecological integrity protection among park staff and the public.

The Panel notes that the Inventory and Monitoring (I & M) Branch of the United States National Park Service annually produces a report similar to Parks Canada's national State of the Parks Report. Parks highlighted in the United States report are selected to represent various regions. The report provides "a comprehensive account of the monitoring and status of natural resources in 13 National Park Service units that conduct prototype long-term ecological monitoring under the I&M program. Data management in the I&M program, and the I&M training program are also described." In contrast to Parks Canada, the United States National Park Service has a national monitoring program to co-ordinate inventory and monitoring, and to provide technical assistance and training.

State of Greater Fundy Ecosystem Report

The State of the Greater Fundy Ecosystem Report is one of only three examples within Parks Canada of a comprehensive assessment of the state of a national park and its surrounding ecosystem. The report looked at a range of indicators of ecological integrity, basing its conclusions on the results of over 30 research projects and the efforts of a wide range of researchers.

The report concluded that the Greater Fundy Ecosystem is heavily affected by human use, with a demonstrated loss of ecological integrity. More importantly, trends are toward continued loss of ecological integrity as land use pressures intensify. Some of the ecosystem impacts are dramatic:

- few native fish species remain in the rivers, due to factors originating both inside and outside the park;
- older-aged forest communities are dramatically reduced, and the viability of sensitive species is doubtful. The remaining forest communities are highly fragmented by roads, clearcuts and plantations;
- the Greater Fundy Ecosystem has lost 14 species of vertebrates, one invertebrate species and 20 plants;
- there has been a widespread change in community structure, and many community types have been reduced in extent;
- forest harvest is currently the primary stress on the Greater Fundy Ecosystem; in the past, hunting, trapping, and land clearing for agriculture were also significant stresses.

The State of the Greater Fundy Ecosystem Report was only possible because of the contribution of a wide range of researchers from government, universities and the private sector. Parks Canada currently does not have the resources in place to repeat the report.



RECOMMENDATIONS

6-8. We recommend that Parks Canada establish an ongoing park-based monitoring report of the state of each individual park's ecological integrity (see for example the State of Greater Fundy Ecosystem Report or Waterton's State of the Crown of the Continent Report). As outlined in recommendation 3-3, these reports should be done every five years, prior to management plan review. In addition, these reports should undergo a third-party review/audit and be made publicly available as part of an annual public reporting process. In using this report, the revised Park Management Plan should demonstrate how the proposed direction and specific management actions respond to the state of ecological integrity within the park (Chapter 3).

The park-based State of the Park Report should include:

- a description of how the ecosystem functions and a list of the key drivers;
- a description of the current ecosystem conditions and stressors;
- a summary of changes of key indicators over time;
- an overview of the state of the regional ecosystem including a discussion on the most significant regional stressors;
- results of past management practices;
- a projection of future conditions in the absence of management changes;

- a proposed park zoning system based on ecological sensitivities;
- responses required by the management plan.

6-9. We recommend that Parks Canada continue to produce the national-level State of Parks Report with the following changes. The Minister should affirm that the primary purpose of the State of the Parks Report is to report on ecological integrity, regardless of whether the State of the Parks Report includes other integrated information. In addition the State of Parks Report should:

- be subject to a third-party scientific review and audit;
- be reviewed by the House of Commons Standing Committee on Canadian Heritage.

6-10. We recommend that Parks Canada develop a formal and rigorous data collection approach for State of the Parks Reports. Specifically we recommend that Parks Canada:

- define linkages between park-level monitoring and national-level monitoring;
- develop common methodologies and protocols that are ecologically appropriate to each park but capable of being aggregated to national-level reporting;
- establish a national database for national State of the Parks Reports;
- dedicate staff at the National Office to the task assembling a national database for State of Parks Reports.



Data and Information Management

"An integrated data base will be developed and kept up for each national park to provide, along with research and environmental monitoring, the baseline information required to protect and maintain park ecosystems and contribute to State of the Parks reporting to Parliament."

Parks Canada, Guiding Principles and Operational Policies (1994) p. 35

Information Needs vs. Data Collection: Jasper National Park

In the redesign of its geographic information, Jasper National Park conducted a formal information needs analysis that asked basic information-needs questions, instead of the more usual question, "what data do we need to collect?" The Jasper study took one year; typically, researchers worked with park managers to help identify information needs. In total, 60 information products were identified. After the information needs were known, data needs were relatively easy to delineate. Key questions regarding acceptable levels of variation and data collection frequency were also easier to answer.

Parks Canada often confuses data with information. Information is knowledge gained from the analysis of data. Information needs should be explicitly specified prior to data collection, but this is rarely the case. Data management and document archiving in national parks are in a very poor state. The preservation of valuable data are being neglected; data are not treated as an asset.

Parks Canada recognizes the need for an appropriate data and information base to support ecosystem conservation and consequently has made large investments in inventories and research over the past two decades. Unfortunately, the need to protect collected data and keep them available has not received the same national recognition. For example, the Natural Resources Management Process states the requirement for updating park data, but does not specify what to do with the old data.

At the regional level, significant efforts have been made to develop data management frameworks. Excellent examples include the Ecological and Heritage Resource Data Management Plan for northern parks (Blyth, 1998), and the Ecosystem Science Information Management System for Kejimikujik National Park (Drysdale and O'Grady, 1999).

Understanding ecological integrity requires an understanding of how the ecosystem is changing through time. Though methods such as pollen or tree-growth ring studies can help reconstruct an

image of the past, historical data are still the best source for examining an

ecosystem's evolution. Parks Canada often confuses data management and archiving systems with the supporting hardware and software tools. By themselves, such tools as geographic information systems do not assure persistent data sets.

Data are Not Information

Information comes from the analysis of data. Most Parks Canada efforts have focused on the issue of data management rather than information management. An information needs analysis should be conducted prior to determining data needs. An information needs analysis should involve all users of ecological information and should ask the following basic questions:

- what kind of information is needed to understand or make decisions about the park?
- how accurate does the information need to be?
- how current does the information need to be?
- what resolution of the information is acceptable?
- what format is the most useful (maps, reports, databases)?



Data are Being Lost

The Panel was told that 50 per cent of all studies done in national parks have been lost because of poor data management.

"Everyone in the parks uses data, but few people are willing to manage it or maintain it. Some of the best data are lost daily. The challenge is to shift the perception that data management is nice to have to the reality that good data management is essential for maintenance of long term ecological integrity in parks."

"I feel the key science issue is data management or rather the lack of it...Everyone agrees it is important [but] very few parks, if any, can show a documented data base for biological data. Some have an active Geographic Information System and consider this meets the requirements of a data management system."

submissions to the Panel

Even today, many data sets are on floppy disks gathering dust in someone's desk drawer. There are few examples of data information catalogues or sufficient documentation, backup and storage of digital information. Poor data management has resulted in the loss of information costing millions of dollars. This is a completely unacceptable situation, both for the use of public funds and the management of good science.

Written documentation is also poorly maintained. Park libraries are in disarray. During the downsizing of Parks Canada over the last five years, park libraries were often casualties. We were told of libraries, with hundreds of original reports, stored in boxes that were placed in damp storage. The document collection at the National Documentation Centre is incomplete due to poor collaboration from the Field Units.

Some parks have extensive and well-organized resource centres, others are in disarray
J. Pleau/Parks Canada



Sharing Data with Others

Ecosystem-based management requires the ability to share data with neighbouring jurisdictions and partners at scales that match the area of cooperation or concern. While Parks Canada has undertaken some initiatives related to sharing data, these initiatives have been inconsistent across the system. Individual parks have built some success in sharing information at the scale of the greater ecosystem. Parks Canada will need to work with provincial, national and international partners, and therefore needs to improve its ability to share data at such scales.

Poor Data Management Guidelines and Standards

The efficient implementation of data management requires the establishment of proper procedures, practices and standards. The Panel observed:

- a lack of national-level co-ordination, resulting in regional duplication of effort;
- no current national directives or standards to guide data management;
- at the park level, development and implementation of data management strategies are often postponed because of pressing data analysis demands. Data are being lost because there is no time to archive used data.

To support ecosystem-based management at the greater park ecosystem level, consolidation of regional ecological databases is needed

— a task easier said than done. Data sharing frequently poses barriers even among federal agencies. In North America, the development of Conservation Data Centres has been a major breakthrough in regional data manage-

ment. There are currently six Conservation Data Centres in Canada and they have considerable experience in setting data standards and managing conserva-

tion data. Parks Canada has much to learn from these organizations.

In addition, there are ongoing efforts to establish a national Biodiversity Resource Network. This network would be a partnership of governments, universities, industry, and non-governmental organizations, and would act as an independent information and distribution centre for the entire range of biodiversity information. The Network would consist of a series of Internet-linked nodes accessing biodiversity information of all kinds. Such a network would be an obvious partnership for Parks Canada and would help Canada meet its commitments to the Convention on Biological Diversity.

"In the last few years, parks and Service Centres producing reports have forgotten the existence of the Resource Centre, as well as its mandate, which is to provide information to users. Within a few years, reports at the Resource Centre often become the only copies available."

submission to the Panel

RECOMMENDATIONS

6-11. In recognition that data and information are different, we recommend that prior to any data collection program, Parks Canada formally define what information is required for management. Formally define information needs by asking what is required, what level of precision is required, how current does the information need to be and what scale of resolution is required. The information needs analysis should be conducted in all parks using the model established in Jasper National Park (Thomlinson, 1997).

6-12. We recommend that Parks Canada establish a system-wide data management and archiving system. These could include:

- establishing guidelines and standards that will ensure long-term survival of data and documentation and easy retrieval for all potential users;
- establishing national guidelines and standards for data repositories and for metadata description of all data sets;

- ensuring copies of all documents related to park management and ecosystem conservation are deposited at Parks Canada's National Documentation Centre. Develop a National Data Repository to complement the Documentation Centre;
- each park should ensure that in-house and contracted research data and reports are deposited at the Parks Canada National Documentation Centre and the regional Service Centres. Establish guidelines for the deposition of natural specimens at appropriate facilities.

6-13. We recommend that Parks Canada make Field Unit Superintendents responsible for the protection of park ecological data and documentation. Through regular audits, evaluate the state of ecological data sets and documentation. As a first step, Parks Canada should have Statistics Canada conduct an audit on data management and storage mechanisms.



6-14. We recommend that Parks Canada report the condition of ecological data sets in the national parks in the national and park-level State of the Park(s) Reports.

6-15. We recommend that in all national parks, Parks Canada design data management plans to organize, protect and make data accessible. These plans should be considered a key product of the ecosystem conservation program, while Park Management Plans should include the park's data management strategy.

6-16. We recommend that Parks Canada assign professional geographic information officers to each national park, to maintain a professional database and ensure public access. These data managers should work in close partnership with external partners in regional Conservation Data Centres.

6-17. We recommend that Parks Canada invest in the existing network of Canadian Conservation Data Centres, through direct funding, by:

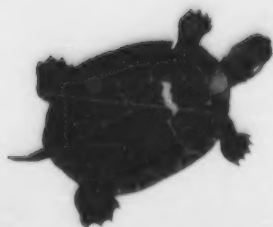
- investing or becoming a partner with Conservation Data Centres. Parks Canada could ensure standardization and further the cause of ensuring the availability of conservation data in Canada. Parks Canada could also contribute to the evolving standards for spatial conservation data (estimated cost: \$300,000 per year at \$50,000 per centre);
- assist the development of Conservation Data Centres in the Yukon, Nunavut and Northwest Territories through provision of funding and expertise. In the long term, such regional databases will be an invaluable asset to Parks Canada. (Estimated cost: \$150,000 per year at \$50,000 per centre.)

6-18. We recommend that Parks Canada make suitable Parks Canada databases publicly available on the Internet. This will ensure data standards are maintained and allow researchers to conduct additional analysis that can benefit Parks Canada.

6-19. We recommend that Parks Canada enhance its ability to manage and share information at the National Office, Service Centres and national parks, so that Parks Canada can share data and information "vertically" within the organization and "horizontally," at appropriate scales, with external partners, as follows:

- the National Office requires the enhanced ability to share information with other federal departments and international agencies, and to provide information about national ecological integrity issues to Service Centres and national parks;
- Service Centres require the enhanced ability to share information with provincial ecosystem management agencies, non-governmental organizations, and private organizations, and to support data management and analysis in national parks;
- national parks require the ability to share information with partners on the scale of the greater ecosystem, and to send critical information up through the Parks Canada system.

6-20. We recommend that Parks Canada become an active partner in ongoing national efforts to establish a Biodiversity Resource Network. Parks Canada's involvement could range from cataloguing its databases for network access to participating in the design of the Network's structure to ensure the Network will meet Parks Canada's needs.





SECTION D: ABORIGINAL PEOPLES AND NATIONAL PARKS

Aboriginal drummer and
dancers in Riding Mountain
National Park
Parks Canada



CHAPTER 7: WORKING WITH ABORIGINAL PEOPLES

Human habitation throughout Canada long predates the creation of national parks. The naturalized knowledge, and traditional uses, culture and values of Aboriginal peoples were once as much a part of ecosystems as water, vegetation, landscape or wildlife. Until recently, national parks' creation and ongoing activities have largely ignored the Aboriginal human aspect of park ecology. As a result, naturalized knowledge and values are now generally lacking in national parks. This ignorance of naturalized knowledge has contributed to the decline of ecological integrity in many parks. Parks Canada appears to be receptive to fostering opportunities to increase

Aboriginal participation in parks management but real action remains sporadic and lacks direction, with the exception of recently-created co-managed parks.

A process of healing is needed to develop trust and respect and to facilitate two-way communication and education between Parks Canada and Aboriginal peoples. Future resolution of such issues as Aboriginal harvest of flora and fauna within national parks is contingent upon this healing and development of mutual trust and understanding.



The Lessons of History — From Expulsion to Co-management



An ancient fish trap built
by Aboriginal peoples in the
Broken Group Islands, Pacific
Rim National Park Reserve

P. Wilkinson

For the purpose of this report, the term "Aboriginal peoples" includes Inuit, Métis, non-status and status Aboriginal peoples. Whenever we are referring to governments of status Aboriginal peoples, we use the terms "First Nations" or "First Nation governments." We use these terms as a sign of respect.

Humans have been present for thousands of years on the lands that now constitute Canada. Their association with the land and their traditional activities were part of the ecosystems and, to a certain extent, made the landscape what it was when Europeans first arrived. Over the past 200 years or so, the traditional natural ecological role of humans was extirpated to a great degree everywhere in Canada and almost completely from the national parks.

In the Panel's view, ecological integrity embraces this traditional human element; the influence of Aboriginal peoples is fully consistent with our definition of ecological integrity as outlined in Chapter 1. This traditional human role is an important element of the ecological integrity of the ecosystems that Parks Canada is mandated to preserve or restore, and is currently missing from nearly all of Canada's national parks.

Upon creation of some parks in the first half of this century, Aboriginal peoples were expelled from the lands they occupied. Until 1982, national parks created on lands governed by treaties are considered by Canada to be "occupied Crown Lands," and are excluded from any claims for traditional rights. More recently, parks established on lands under claim by First Nations were created as "national park reserves" pending the resolution of Aboriginal lands and rights claims in these national park reserves. Still other parks were established with co-management agreements. With regard to co-managed national parks, Parks Canada policy states that *"in areas subject to existing Aboriginal or treaty rights or to comprehensive land claims by Aboriginal peoples, the terms and conditions of parks establishment will include provision for continuation of renewable resource harvesting activities, and the nature and extent of Aboriginal peoples' involvement in park planning and management."*

This provision is aimed at protecting any present or future negotiated rights under land claims agreements. Parks created as a result of negotiations with First Nations (such as Gwaii Haanas) or as part of the comprehensive claim process (such as Ivvavik) have included explicit co-management provisions.

The eastern and southern lands of Canada have been settled the longest and have seen the greatest conflicts between Aboriginal and non-Aboriginal peoples. These conflicts and settlements have made it difficult for



national parks and the Aboriginal peoples of the area to discuss ways to "heal the hurts." With genuine partnerships, Parks Canada may begin to manage the older parks in the system while taking into account the rights and responsibilities of First Nations, as has been done in Gwaii Haanas and Ivvavik, and others.

Consistent with the overall Government of Canada approach to the resolution of issues respecting Aboriginal peoples, Parks Canada has traditionally adopted a legalistic approach and position in dealing with Aboriginal issues — which are often referred to as "problems." In recent years, First Nations have also resorted to a legal approach to assert their claims and court decisions have consistently gone in favour of the recognition and implementation of their constitutional, traditional rights (Appendix E). Even as issues continue to be debated and resolved between governments or in the courts, there is

opportunity for significant progress at other levels in reconciling Aboriginal and non-Aboriginal peoples.

Significant progress has been made. Parks Canada has recognized the importance of Aboriginal rights, culture and socio-economic interests in relation to national park management. Parks Canada has made efforts to hire more Aboriginal peoples, encouraged Aboriginal peoples' participation in interpretation programs and actual park management. However, because relationships with Aboriginal peoples are based on official government positions, working arrangements tend to be adversarial and lack the openness necessary to enter into effective and productive partnerships.

In recognition of the need to improve relationships, Parks Canada has recently established an Aboriginal Secretariat with the mandate to help all units to develop constructive relationships.

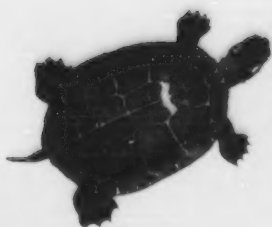
Shared Vision — The Spirit of Ecological Integrity

Even as they maintained bonds and relationships with the land, aboriginal peoples have traditionally held certain places as sacred. Thus, they recognize a hierarchy of places and spaces through time. Today, as Canadians seek to manage national parks in ways that will ensure ecological integrity forever, Canadians can join with Aboriginal peoples in a common objective to protect these sacred places.

Embracing a shared vision for the protection of these spaces is the foundation of a constructive relationship which recognizes the early presence of Aboriginal peoples, their knowledge and understanding of the land and its processes, and the contribution that Aboriginal peoples can make to the management of parks and the

surrounding areas (for example, Vuntut National Park, as discussed in Chapter 3). Shared vision is the also basis for alliances and partnerships.

Shared vision requires policy direction that will encourage park managers to engage their Aboriginal neighbours in relationships based on mutual respect and recognition of the contribution that each party brings to the table. That relationship moves away from respective assertions of rights toward co-operation based on shared responsibility. It is interesting to note that 50 per cent of the current area contained within Canada's national parks has been preserved as a result of Aboriginal peoples putting aside their lands for park creation. As discussed in Chapter 3, Parks Canada must nurture this



notion of shared responsibility and learning, and provide policy direction for personnel development and for practical measures of collaboration.

Canadians can learn from history and create new directions for the future. If Parks Canada is to achieve its mandate,

it is important to learn from history to create a common direction and alliances with Aboriginal peoples. Successful partnerships in the area of integrating Aboriginal knowledge and values into parks management may serve as models to Canadians at large for developing other partnerships and alliances.

Forming Genuine Partnerships

The notion of genuine partnership is fundamental to successfully integrating Aboriginal knowledge and values into park management. It is important to understand the meaning of "genuine partnership" that the Panel endorses (Chapter 9).

Aboriginal peoples believe that any genuine partnership must be built on basic principles that embody certain fundamental conditions. For example, the Haudenosaunee First Nation bases genuine partnerships on respect, equity and empowerment. We have used this example as a model for initiating and maintaining genuine partnerships between Aboriginal peoples and Parks Canada but it is not the only means

A Haudenosaunee Model for Genuine Partnership

In the Haudenosaunee model, the fundamental conditions for developing a genuine partnership are respect, equity and empowerment.

Respect for the partnership is built with the tools of understanding, communication, consensus, mediation and honour.

- understanding requires that the parties learn about one another — assumptions and myths are not sound foundations for partnerships. The process of learning about each other must be formalized so that each partner is clearly hearing, seeing and listening to the other;
- communication is the process by which adequate information is transferred in a timely and appropriate manner to assist understanding;
- consensus and mediation are the backbones of respect. Consensus does not necessarily mean total agreement among the parties, but the reasonable agreement of a majority of the participants;
- mediation is the process for dealing with the minority who do not agree with the majority's decision. Mediation may be formal or informal.

Equity refers to the resources needed to carry out the partnership. The tools of equity are finances, knowledge, networks, personnel and social-political power. In Canadian society, equity is mostly viewed as money; in Aboriginal communities, equity is viewed more as knowledge, networks, personnel and power. Finance, knowledge, networks, personnel and social-political power must be evaluated by the partnership and a common value established.

Empowerment is the power and will to perform an action. Empowerment is strengthened by application, authorship, credibility, new partnerships and responsibility. Projects are accomplished in a partnership only by the mutual work and responsibility of the partners. Success and blame are shared by the partners and not assigned to one or the other. As empowerment grows, misconceptions are ended and respect grows; the partnership becomes more powerful. As the partnership completes its task, the ability to find equity and empowerment of the partnership prospers. This type of genuine partnership cannot help but benefit both partners.

The Haida Gwaii Watchmen maintain a longhouse at Windy Bay on Lyell Island, Gwaii Haanas National Park Reserve/Haida Heritage Site.
D. Andrews/Parks Canada

for developing partnerships — many others exist. Our point is that the fundamental conditions and principles must be understood and honoured by both sides for the partnership to be successful.

Parks Canada currently has many genuine partnerships with Aboriginal peoples, where the fundamental conditions and principles have been understood and applied. In other cases, partnerships have failed when the fundamental principles have been violated.



Haida Gwaii Watchmen

The Haida Gwaii Watchmen program was instituted by the Haida First Nation at their culturally significant sites on South Moresby Island, within what is now Gwaii Haanas National Park Reserve/Haida Heritage Site.

In 1981, members of the Skidegate Band Council and Haida Nation sent Haida volunteers to several sites to watch over the natural and cultural heritage of these locations, in the face of increasing outside interest in and access to the sites.

The Watchmen also provided visitors with insights to Haida culture, and shared songs, stories, dances and teachings.

The South Moresby area was declared a Haida Heritage Site in 1985 and a National Park Reserve in 1988. The unprecedented Gwaii Haanas Agreement, approved in 1993, established the terms of area co-management between the Haida Nation and the Government of Canada/Parks Canada. The Haida Gwaii Watchmen program has continued to operate with funding made available through a contract with Parks Canada. Parks Canada has worked together with the Haida Gwaii Watchmen to create a training and development plan that is now being implemented. Parks Canada staff at Gwaii Haanas work closely with the Watchmen and support the spirit and educational aspects of the program.

Aboriginal Harvest in National Parks: From Rights to Responsibilities



This Haida Elder was among the first Haida Gwaii Watchmen. M. Quan



Shared vision and genuine partnerships will help move issues associated with Aboriginal rights toward a shared responsibility for the Mother Earth. It is the Panel's understanding that Aboriginal peoples care more for their responsibility to the Earth and all living things than they do for the rights of the individual. Rights cases have been the only way in which Aboriginal peoples could get their issues and treaties addressed within Canada's legal system, but within Aboriginal communities the responsibility of the people to protect the Earth is paramount.

This dependency on court cases to establish rights is detrimental to the development of sound practices and the acknowledgement of responsibilities, since it undercuts the traditional ways and customs of protecting the land. Despite what many Canadians may believe, Aboriginal peoples adhere to a set of laws and prohibitions that, while perhaps different from formal laws and prohibitions that govern non-Aboriginals, are no less stringent and carry similar societal sanctions for those who break the laws.

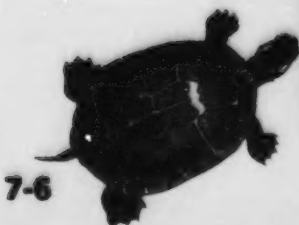
First Nations governments and people have their own laws, regulations, codes and practices for protecting the Earth. These instruments are an integral part of Aboriginal cultures and societies. Aboriginal peoples need the people of Canada (and the governments of Canada) to recognize and support these traditional responsibilities, this cultural commitment to conservation. This support will be the basis for trusting and respectful relationships, which in turn will allow the return of Aboriginal activities to national parks — including harvest of plants and animals within traditions, or for traditional uses, and supported by a strong cultural conservation ethic — with the full understanding and agreement of Parks Canada and the Canadian people.

Aboriginal harvest in Canada's national parks will become an important issue. Recent court cases have helped define the idea that Aboriginal peoples can harvest natural resources in Canada. Harvest does not only include fishing but also forestry, mining and gathering

practices used by Aboriginal peoples to gain a modest living from the land and sea. The traditional rules of Aboriginal peoples must be acknowledged and trusted, because these traditions are responsible, first and foremost, to conservation. Parks Canada can help to integrate humans back into national park ecosystems only if Parks Canada understands and trusts the traditional conservation practices of Aboriginal peoples.

Together with Aboriginal peoples, Parks Canada should develop interpretation and outreach programs and messages concerning Aboriginal use and harvest, emphasizing ecological integrity and the cultural conservation ethics of Aboriginal peoples. Aboriginal peoples themselves are the obvious choice to deliver these messages through interpretation and outreach programs.

An Aboriginal caribou fence in
Vuntut National Park
I. MacNeil/Parks Canada



Champagne-Aishihik First Nation and Kluane National Park Reserve

Early in 1999, the Champagne-Aishihik First Nation held four workshops to gather band members' thoughts on appropriate activities within Kluane National Park Reserve. First Nation leaders took the workshop results forward as input to the Kluane Management Plan, which is still in development.

The Champagne-Aishihik First Nation proposed six goals for management of the park:

1. renew cultural ties to the park — a healing process was recommended so that Champagne-Aishihik First Nation members could reconnect with the land, plants and animals, and cultural sites within the park.
 2. learn and teach cultural heritage — members should learn about their people's history in the park, and that the band produce teaching materials and tourist information about the land and human history in and around the park.
 3. keep plants and animals healthy for the future — management decisions regarding the park's natural resources should be made based on western science and on naturalized knowledge.
 4. training and employment opportunities — for full-time and seasonal jobs in the park.
 5. participating in tourism — support for small business initiatives and cultural tourism initiatives such as teaching traditional skills.
 6. sharing responsibility for the park — work toward Champagne-Aishihik First Nation members becoming full co-managers of the park, with participation in planning and management, and responsibility for wildlife harvest.
-

RECOMMENDATIONS

The Panel believes there is a genuine desire within Parks Canada to make progress toward integrating Aboriginal naturalized knowledge and values into park management, as evidenced by the creation of the Aboriginal Secretariat and a growing number of specific co-operative endeavours at the park level. But all this is taking place under the caveats which govern Canada's policies dealing with claims and First Nations, and patterns of asserting rights through court claims. The Panel therefore proposes that the policies and actions recommended below be implemented without prejudice by either party's positions or interests that can be expressed through legal means or through the claims process.

These recommendations are offered in the spirit of friendship and responsibility for ecological integrity. We acknowledge that the actions embodied in some of these recommendations demand

substantial funding and long-term commitment. We believe that Parks Canada will be substantially stronger and more capable to protect ecological integrity with the help and support of Aboriginal peoples.

7-1. To foster the development of relationships based on trust and respect between Parks Canada and Aboriginal peoples, we recommend that Parks Canada initiate a process of healing between Aboriginal peoples and Parks Canada.

Through this process Parks Canada will:

- recognize that the interpretation and acknowledged history of national parks must reflect the past and present occupation and use by Aboriginal peoples;
- recognize the historical presence, occupation and use by Aboriginal peoples as an inherent component of the greater park ecosystems of national parks;
- solicit Aboriginal peoples' involvement in Parks Canada's activities;



8

An Ojibway Elder performing
a traditional dance to cele-
brate the opening of
Pukaskwa National Park
Parks Canada



- sponsor a series of healing conferences to begin the process of healing, moving from confrontation to collaboration. Note that by "sponsoring" we mean "fostering" or "facilitating," not necessarily "organizing." The notion of true partnership can begin with the respectful meeting of the two sides in a mutually acceptable healing process;
- acknowledge that the healing process offers potential for research and co-operative ventures.

7-2. We recommend that Parks Canada adopt clear policies to encourage and support the development and maintenance of genuine partnerships with Aboriginal peoples in Canada.

Through these policies, Parks Canada will:

- enhance its commitment to Aboriginal peoples by providing the newly-created Aboriginal Secretariat with the resources required to stimulate expressions of genuine partnership at the local, regional and national levels (see Chapter 13 for more discussion regarding funding of the Aboriginal Secretariat). Parks Canada will initiate national, regional and site projects with Aboriginal peoples, which will create an atmosphere of co-operation;
- enhance relationships with the historical occupants of national park lands;
- re-affirm that no new national parks will be established without the involvement of First Nations of the area.

7-3. We recommend that Parks Canada, together with Aboriginal communities, develop mutually-reinforced educational projects that will lead to better mutual understanding and joint



action toward protection of ecological integrity in national parks.

Through these educational projects Parks Canada will:

- provide opportunities for park staff to learn the history and culture of the Aboriginal peoples in their areas;
- give specific mandates to Field Unit Superintendents and adequate information about the Aboriginal history of the region that will enable them to initiate dialogue with the Aboriginal peoples of the area;
- work with Aboriginal people to develop an outreach program to Aboriginal communities, schools and First Nation governments;
- as part of the outreach and awareness program, support the cultural translation of parks materials, including publishing materials in the local Aboriginal language, and using Aboriginal names for places and species in materials published or printed in English, French and other languages;
- as a sign of respect, encourage the use of Aboriginal names for places, plants and animals;
- acknowledge and integrate the knowledge and experience of Aboriginal peoples into efforts to conserve the ecological integrity of Canadian national parks;
- work together with Aboriginal peoples to re-integrate Aboriginal harvest in national parks, on a case-by-base basis, to mutually acceptable levels based on traditional use and the common goal of protecting ecological integrity, including the mutual determination of areas that will remain free of any harvest (Chapter 6).

7-4. We recommend that Parks Canada ensure protection of the current cultural sites, sacred areas and artifacts that are under the auspices of Parks Canada.

As part of this process, Parks Canada will:

- return to First Nations all sacred artifacts and human remains currently in Parks Canada's possession, using proper ceremonies and rites;
- negotiate agreements for the use of Aboriginal artifacts in education and interpretive programs;
- work with Aboriginal peoples to create a secure and private inventory of sacred areas, so that they can be better protected;
- facilitate the execution of ceremonies and rites that Aboriginal peoples believe necessary for their culture;
- empower and enable First Nations people to tell their own stories in the parks, including direct participation in interpretive program planning and delivery;



SECTION E: PROTECTED AREAS AND PARTNERSHIPS



The White Bear River in the
Mealy Mountains of Labrador,
an area being considered for
national park status
I. MacNeil/Parks Canada

CHAPTER 8: NATIONAL PARKS IN THE CANADIAN PROTECTED AREAS NETWORK

National parks today are one part of a complex network of federal, provincial, territorial, municipal and First Nations protected areas. Private land conservation agreements play an increasing role in southern Canada, and voluntary stewardship is now also an important part of the protected areas mosaic. A well-planned system of protected areas contributes to the maintenance of ecological integrity across the landscape. In Canada, a comprehensive national protected areas strategy that folds in the myriad layers of conservation goals does not yet exist. A prerequisite to such a strategy would entail a nationwide gap analysis, followed by a co-operative implementation plan.

In addition, although Parks Canada strives to provide the best possible representation of each region's biophysical characteristics, the final choice of park candidate areas has often been dictated by factors not related to ecology. Co-operation between the federal, provincial and territorial governments is crucial in establishing national parks and other protected areas. Parks created in conjunction with First Nations' land claims agreements offer models and opportunities for co-operative establishment and management.



Divergent Approaches to Protection

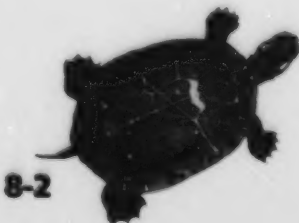
When national and provincial parks, wildlife management areas, heritage rivers, conservation easements, wilderness areas, marine conservation areas, special management areas established under First Nations' land claims, and a host of other conservation tools are meshed together, they make up Canada's national protected areas system. But is it really a "system"? Does it serve the nation's needs for conservation of biodiversity, wilderness, ecological integrity or sacred lands and waters?

Early national and provincial parks were set aside as opportunities arose. These lands were preserved for their scenic beauty, wildlife or other wonders of nature. Growth in the number of parks for the first half of the century was not part of a system plan, and certainly not explicitly linked to protecting biodiversity. Parks Canada devised a systematic approach based on designating at least one national park in each of 39 terrestrial natural regions. Similar approaches were adopted in some of the provinces, but these methods predated many of the modern principles of conservation biology.

Scientists have not resolved how fine the scale of representation should be. We are not challenging the way Parks Canada chooses to represent natural regions with national parks but note that Parks Canada must consider potential choices for national parks in the context of other approaches to ecosystem representation.

In recognition of the important role that Canadian rivers play in conservation and cultural heritage, an attempt was made in the 1970s to address a short-fall in the national park system — namely, preserving heritage rivers, similar to the National Wild and Scenic Rivers Act in the United States. Complex federal-provincial negotiations involving jurisdiction over inland waters and other resources resulted in the Canadian Heritage Rivers program, a co-operative effort to manage rivers for their wilderness, recreation or cultural values. Although the "Heritage River" designation offers no legal protection (unless the river flows through an otherwise protected area) the designation remains a significant tool for conservation.

In the 1980s, the idea of using ecoregions as the building blocks for a representative terrestrial protected areas system gained acceptance. Most scientists now define the Canadian landscape according to large scale ecozones, such as the Prairie Ecozone or the Boreal Shield Ecozone, which are in turn divided into smaller ecoregions. Each ecoregion has characteristic landforms, climate, vegetation and wildlife habitat. The provinces and territories have adopted the ecoregions approach to replace the older "natural regions" classification, which is based on broad physiographic regions. The goal of establishing representative protected areas was based on the notion that an example of each ecoregion could capture the typical range of variability in landforms, vegetation and wildlife, and therefore help conserve the native biodiversity of the region.



In 1989, the national Endangered Spaces Campaign, launched by the World Wildlife Fund and the Canadian Parks and Wilderness Society, had the objective of completing a protected areas system representative of all of the country's 486 ecoregions (as opposed to Parks Canada's use of the much broader "terrestrial natural regions"). The federal, provincial and territorial governments signed on to the campaign principles, leading to the first attempt towards at least one component of a national protected areas strategy.

The Endangered Spaces goal became public policy in 1992, when the "Statement of Commitment to Complete Canada's Network of Protected Areas" was signed by the Tri-Council of Environment, Parks and Wildlife Ministers (federal, provincial and territorial ministers responsible for environment, wildlife and parks). The Statement committed governments to completing the terrestrial protected areas network by 2000. This has led to doubling the amount of protected land in Canada in the last decade — a remarkable achievement. Yet, Canada still ranks only 36th in the world in terms of area legally protected from industrial development, behind countries such as New Zealand, Venezuela, Guatemala and Chile. The target for completing the protected areas network by 2000 has not been met.

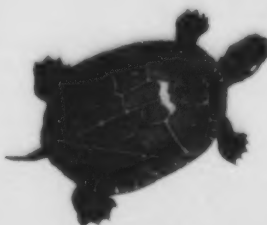
At the scale of ecoregion analysis used by the World Wildlife Fund and many of the provinces, about 27 per cent of Canada's terrestrial ecoregions have representative protected areas. An additional 30 per cent of the ecoregions have some level of protection, for example in a few small parks, but these do not meet basic criteria for representation of habitats. By early 2000, 43 per cent of the ecoregions had no protected habitats (World Wildlife Fund Canada, November, 1999).

The Endangered Spaces Campaign is built on the premise that all jurisdictions can and should contribute to completing a Canadian system of protected areas. The campaign objectives, reflected by provincial and territorial government policies across the country, also acknowledge that areas representing natural regions or ecoregions are only part of the solution.

The modern conservation paradigm assigns several key attributes to a terrestrial protected areas system, including:

- representative core areas in each ecoregion, designed to play a key role in maintaining ecological integrity;
- protection of wildlife habitat and species populations;
- protection of rare and endangered species;
- maintenance of ecological connectivity between protected areas;
- protection of special natural and cultural features and landscapes;
- management of human uses outside of protected areas in such a way as to conserve biodiversity and ecosystem functions, as well as cultural landscapes and special places.

A truly national protected areas strategy would encompass all of these conservation goals, with Parks Canada fulfilling its objectives within a mosaic of other protected areas. Likewise, national marine conservation areas would be part of a series of protected areas and management regimes in Canada's marine regions.





Maintaining populations of wide-ranging species such as caribou requires innovative approaches to ecosystem protection.

W. Lynch/Parks Canada

Within the Endangered Spaces context, protected areas are assessed according to their contribution toward representing the 486 ecoregions, not the 39 natural regions. Canada's 39 natural regions are generally far too large and diverse for a single national park to adequately represent the entire region. Thus, although national parks contribute to the overall goal of representing ecoregions, selection of candidate areas for national parks is not focused on this goal and ecoregions still needing representation remain unprotected.

Most jurisdictions in the country, including Parks Canada, use a variety

of methods to identify gaps in the system. In the case of Parks Canada's approach, it is simply a question of meeting the goal of one national park in each natural region. The World Wildlife Fund has completed a national gap analysis of representative protected areas, but this analysis is based on enduring features (landforms). It does not encompass more dynamic features such as movement of barren ground caribou or wide-ranging carnivores. Some jurisdictions, such as Yukon, have a protected areas strategy that assesses gaps by ecoregion representation, while allowing for a complementary system of wildlife habitat protection areas to fill out the system. In spite of these approaches across the country, there are many unaccounted gaps in the protected areas system. For example, what method assesses protection of the boreal forest woodland caribou herds that migrate across vast areas of protected and unprotected lands?

A comprehensive national protected areas system plan that folds in the myriad layers of conservation goals does not yet exist. A prerequisite to such a strategy would entail a nationwide gap analysis, followed by a co-operative implementation plan.

The National Parks System

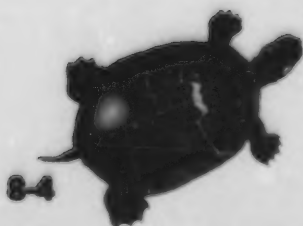
The National Parks System Plan provides for a five-step process for establishing new parks:

- identify representative natural areas within the natural region;
- select potential park areas, known as "Natural Areas of Canadian Significance;"
- assess park feasibility;
- negotiate a new park agreement;
- establish a new national park in legislation.



Parks Canada has proposed a feasibility study for the Wolf Lake area in Yukon

J. Peepre



Gwaii Haanas National Park
Reserve/Haida Heritage Site
H. Quan



In 1991, the Canadian Environmental Advisory Council (CEAC) characterized the problem in this way: *"Establishing protected areas in isolation from regional planning and decision-making processes is not an effective way to ensure the maintenance of their long-term ecological integrity. Past experience has shown that surrounding communities, landowners and commercial developers systematically encircle and encroach on protected areas. The result is often the loss of protected area values and demands for inappropriate uses of these resources."*

A Protected Areas Vision
for Canada, CEAC (1991)

Since the 1980s, many new national parks have been established through land claims agreements with First Nations. These agreements provide a good opportunity to integrate park management objectives with those

Establishing New National Parks

The Canadian federal government is committed to extending the national park system as part of a broader package of environmental initiatives. Partnerships and community development are key parts of these commitments. In combination with the renewed focus on ecological integrity, this presents Parks Canada with a renewed opportunity to establish new parks within a greater ecosystem context.

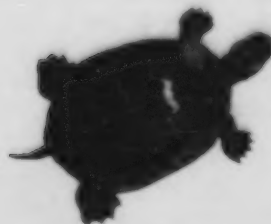
New national parks must be established with the co-operation of the provinces and territories. Provinces manage the land and natural resources before the formal transfer to federal jurisdiction, and retain full management authority over land and resources

of neighbouring jurisdictions within a traditional territory. For example, where land claims agreements have been settled, regionally- and locally-manulated boards and councils have a direct say in land and water management both inside and outside park boundaries.

Many of the current challenges in maintaining the ecological integrity of southern national parks are the result of inappropriate boundaries or park agreements established many decades ago. Today, although science has led to a better understanding of factors affecting ecological integrity, optimum national park boundaries continue to be compromised during the park establishment phase, due to competing economic and land use interests. National park boundaries and management arrangements with neighbouring jurisdictions can have a profound effect on the future ecological integrity of the park and the "greater park ecosystem" (ecosystems that extend beyond park boundaries). Parks Canada strives to establish boundaries that will help sustain ecological integrity.

around national parks, once the parks are established. First Nations governments also have a key role to play in negotiating new parks within traditional territories.

The Panel found that in spite of the best efforts of park planners, conservation science often does not play a key role in final negotiations for new park boundaries or in the terms of agreement with neighbouring jurisdictions. In many cases, the ability of Parks Canada to maintain the future ecological integrity of new national parks is uncertain due to compromises in park size, boundary configuration and adjacent land uses.





The Palmer River area of Labrador's Torngat Mountains, another area being considered for national park status
I. MacNeil/Parks Canada

Auditor General's Report

In 1996, the Auditor General of Canada noted that failure to secure provincial and local support for new national parks leaves candidate sites open to other land use decisions that could prevent the creation of a new national park. The report states:

By simply waiting for other governments and local communities to adopt favourable positions, Parks Canada is reducing the likelihood of achieving representation in several natural regions and maintaining ecological integrity.

A number of candidate sites for national parks remain open to industrial development activities. We are concerned that these activities could harm the ecosystems and wildlife habitat that national parks are trying to protect, and impair their value as wilderness reserves.

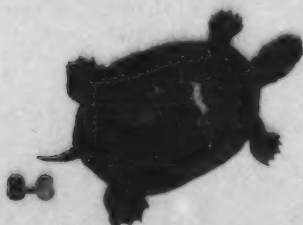
The difficulty in establishing new park boundaries and regional co-operative management arrangements that reflect ecological integrity goals stems from a variety of influences on the five-step park establishment process:

- the ecological integrity of potential new parks in the remaining un-represented terrestrial natural regions in southern Canada is becoming increasingly difficult to achieve due to the degree of landscape fragmentation, urbanization and resource development;
- Parks Canada lacks the financial resources to carry out adequate biophysical inventories and ecosystem analyses of new park candidates. This means that Parks Canada begins negotiations for new parks without the conservation science needed to identify and advocate optimum park boundaries. In contrast, in the northern territories, Parks Canada spends ten times as much money on identifying potential mineral

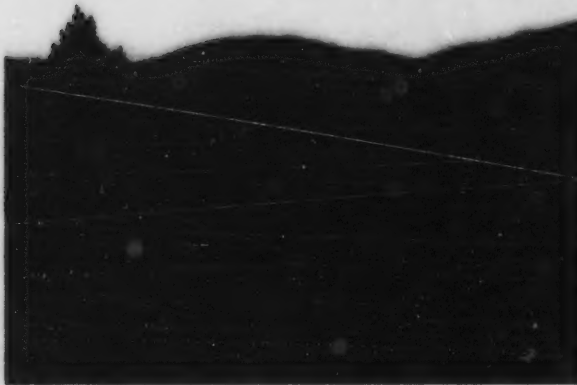
resources under the Mineral and Energy Resources Assessment (MERA) process as on basic wildlife, vegetation or ecosystem work. Biophysical inventories rely heavily on secondary resources, thereby constraining Parks Canada to a weak starting point on ecological integrity goals for park establishment agreements.

The Panel found that problems outlined by the Auditor General in 1996 still exist to a significant extent today and may result in part from Parks Canada's approach to establishing new parks. By formally proposing new park study area boundaries too early in the process, and in the absence of local understanding of ecological integrity protection goals, Parks Canada may be encouraging other jurisdictions to adopt a defensive position at the outset. Parks Canada may be curtailing the ability to achieve a common vision with the relevant province or territory for the greater park ecosystem within which a new national park could be embedded. Interim protection measures meant to ensure that park conservation values will not be lost during negotiations (for example, withdrawal of mining claims) are often slow, cumbersome and ineffective.

Candidate national park sites today are still vulnerable to degradation of ecological integrity during the park establishment process. New park boundaries and regional co-operation arrangements (where they exist) are modified to accommodate competing local and regional economic interests, compromising the future ability of park managers to maintain ecological integrity. While trade-offs are inevitable in negotiations, Parks Canada is hampered by lacking the defensible conservation science and economic analysis needed to justify the best park boundaries. The focus of park establishment negotiations becomes the art of the possible, where early compromises may become entrenched positions at the expense of future ecological integrity.



A Proposed National Park vs. A Proposed Road



Etagaulet River Falls, Mealy Mountains
I. MacNeil/Parks Canada

The Mealy Mountain area of Labrador (the area called Akamiuapishku by the Innu) has been proposed since the 1970s as a candidate national park, representing the East Coast Boreal Region.

The area is part of an Innu land claim and the Innu Nation supports the establishment of this park. Although the provincial government pledged to take action to establish the park in its 1992 Speech from the Throne, the park feasibility study has still not been initiated.

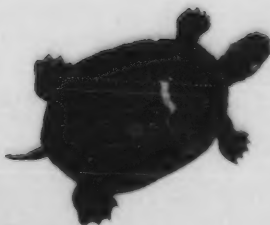
Meanwhile, Phase III of the Trans-Labrador Highway is slated to traverse the proposed Mealy Mountains national park, funded largely from federal sources. The Innu Nation is strongly opposed to the routing of the road through the proposed park, as are several environmental non-governmental organizations. If the road is built through the proposed park area prior to completion of the park feasibility study, it is obvious that resource users will gain access and legal rights to the lands. These rights may also affect the land claim negotiations with the Innu Nation.

Conservation scientists are generally not present at the new park establishment negotiating table to provide evidence in support of park boundaries that would be based on the maintenance of ecological integrity.

The Panel observed that national parks established through land claims agreements, such as the creation of Ivvavik through the Inuvialuit Final Agreement, are managed in a way that takes into account the greater park ecosystem along with Aboriginal interests in the traditional territory. In the case of Ivvavik, local hunter and trapper committees, the Yukon's north-slope Wildlife Management Advisory Committee, and other mandated boards and councils all play a role in regional integration of the park.

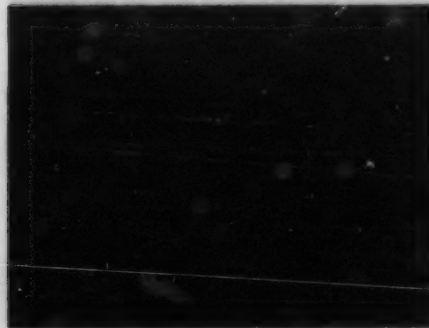
The Parks Canada goal of establishing a national park in each terrestrial natural region is laudable, but insufficient to meet the complex conservation challenges facing the country. Once established, national parks must continue to function and survive as part of a mosaic of connected protected areas and conservation lands. We contend that establishing a comprehensive and linked network of protected areas with the involvement of all jurisdictions, of which national parks are a key part, is the best way to conserve ecological integrity within greater ecosystems and the Canadian landscape as a whole. In addition, new national parks should not be established without the full involvement and consent of First Nations.

We are concerned about the current practice of diverting operating funds for new parks from Parks Canada's budget for existing parks, thereby limiting Parks Canada's ability to protect the ecological integrity of both existing and new parks. We elaborate upon this concern in Chapter 13 of this report.



Park Establishment Agreements Affect Long-term Ecological Integrity: Pacific Rim

Logging near Pacific Rim
National Park Reserve
P. Wilkinson



Pacific Rim National Park Reserve in British Columbia is a relatively small linear park bounded by water on one side and intensive industrial forestry along its forested perimeter. In 1970, Pacific Rim was established primarily for recreation rather than for ecosystem representation values or ecological integrity. At the time, the provincial government was not prepared to remove more lands from timber production, resulting in the narrow coastal strip that is now the park. Park boundaries that were not based on the principles of conservation biology, coupled with a lack of consideration given to regional land use integration in the original park establishment agreement, led to a park that is now vulnerable to many external stresses. The

park's small size also makes it more susceptible to internal human disturbance from increased tourism and recreational use.

Pacific Rim's ecological integrity was ranked as among the most stressed of all national parks, in the State of the Parks 1997 Report. The park itself contributes to ecological integrity in a greater ecosystem that has declined although more recent trends are not altogether negative. New protected areas have been designated nearby and the Clayoquot region has received status as a United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserve.

In spite of these initiatives, 37 new proposed logging cut-blocks along the park boundaries continue to raise strong public concerns — five of these either directly abut park boundaries or are within 75 metres of the boundary. The park's small size makes internally-oriented management strategies ineffective, and the park is now working on a monitoring strategy as a first step to integrate park management within the greater park ecosystem.

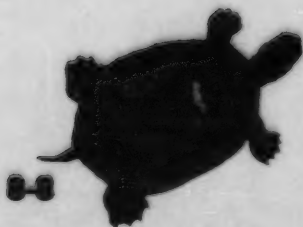
Pacific Rim illustrates the importance of ensuring that ecological integrity and regional integration are paramount concerns at the time of park boundary negotiations and establishment agreements.

RECOMMENDATIONS

8-1. We recommend that the Minister seek provincial and territorial co-operation on finishing, by the end of 2003, the implementation of the Statement of Commitment to Complete Canada's Networks of Protected Areas, endorsed by the Tri-Council of Environment, Parks and Wildlife Ministers in 1992; work towards a comprehensive national protected areas system plan based on co-operation between the Government of Canada, provinces and territories.

The Panel has not identified costs associated with this multi-jurisdictional recommendation.

8-2. We recommend that Parks Canada, in co-operation with other jurisdictions, complete a nation-wide protected areas gap analysis that will guide completion of the national protected areas system, of which national parks represent an essential component. Base the gap analysis on the principles of conservation biology and the maintenance of ecological integrity (Recommendation 3-4).



8-3. We recommend that the Minister expand the national park system to include ecological representation of all 39 natural regions as defined by Parks Canada. We recommend that the Minister ensure sufficient funds are allocated for new park establishment, and that new parks have sufficient funds for planning, operations and ecosystem management, without reducing funds of existing parks (Recommendation 13-4).

8-4. We recommend that Parks Canada negotiate park establishment agreements that give the highest priority to maintaining ecological integrity by seeking boundaries that meet ecological integrity objectives. Ensure regional co-operation measures are in place to support ecological integrity objectives.

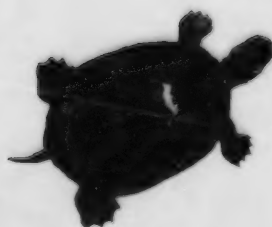
8-5. We recommend that Parks Canada improve local support and future regional co-operation for candidate park sites by:

- promoting a common vision, with the province or territory, for land use in the prospective greater park ecosystem, within which a new national park will play a key role;
- facilitating agreement on a common greater ecosystem vision and park ecological integrity goals among its negotiating partners and the public;
- showing how complementary conservation objectives for surrounding lands can assist other jurisdictions in meeting their mandates;
- demonstrating how maintaining ecological integrity and appropriate visitor use will support diversified local economies;
- directing more human and financial resources toward First Nations and local communities to help them assess the impacts and secure the benefits of new national parks.

8-6. We recommend that Parks Canada increase the resources available to conduct biophysical inventories and greater park ecosystem analyses, to ensure that proposed park boundaries are based on the best available conservation science (Recommendation 6-2 and 13-2).

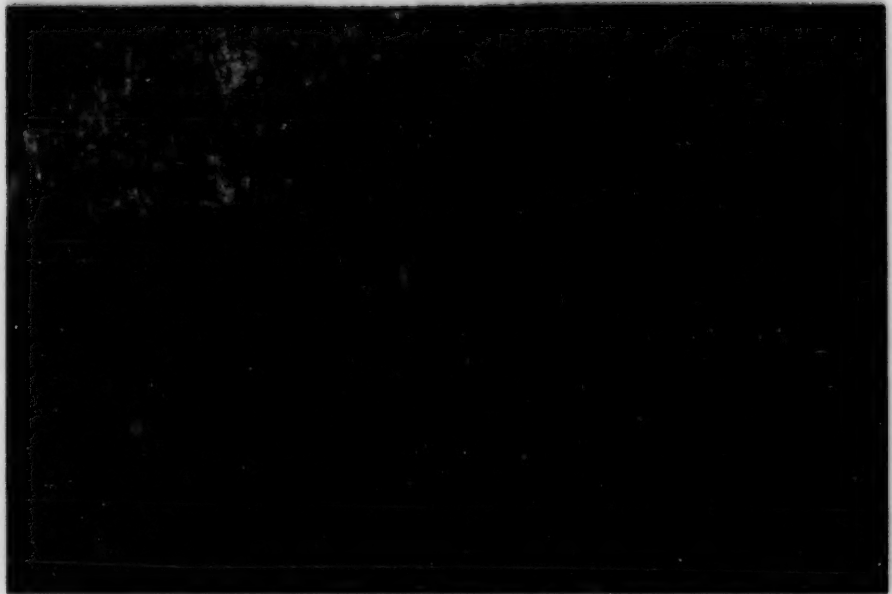
8-7. We recommend that Parks Canada appoint conservation scientists to new park establishment negotiating teams in order to help provide convincing arguments for boundaries based on ecological integrity criteria. Ensure that park planners and conservation scientists who participated in the park establishment phases are available to take part in new park management planning efforts (Recommendation 3-3).

8-8. We recommend that Parks Canada reach agreement with the provinces, territories and other federal departments to use their legislative powers to withdraw candidate national park sites from development as early as possible to preserve their ecological integrity during the planning process. For example, with respect to the boreal forest, urge the responsible governments not to issue timber or other development permits in candidate park sites on federal lands (as recommended by the Senate Subcommittee on the Boreal Forest in *Competing Realities: The Boreal Forest at Risk*, 1999).



This satellite photograph shows development right to the boundary of Point Pelee National Park, isolating the park from other ecosystems.

Parks Canada



CHAPTER 9: FROM ISLANDS TO NETWORKS

In much of Canada, protected areas have become ecological islands, disconnected from other areas of remaining natural habitat. Increasingly, national parks and other conservation lands are surrounded by urban development, agriculture, industrial forestry or other land uses that affect the viability of park ecosystems. To maintain ecological

integrity, the network of national parks and other protected lands needs to be managed as part of greater ecosystems. This requires the co-operation and contribution of provincial and territorial governments, First Nations governments, communities, adjacent landowners, non-governmental organizations and industry.

National Parks as Ecological Islands

For close to a hundred years after Canada's first national park was established at Banff in 1885, most people assumed that protected areas were safe for all time from the advancing tide of human development. Many still do.

Yet by the 1970s, many park managers in Canada faced increasing pressures for growth in tourism and recreation facilities. The logical response of the day was often to direct new development to "buffer zones" outside of parks in order to protect the integrity of parks themselves. Advances in conservation science reveal a more complex picture.

The boundaries of early national parks and other types of protected areas usually did not conform to ecosystems and critical habitat was often located outside of parks, on lands vulnerable to development. The result has been that many protected areas across the continent — and around the world — have become islands of nature, their ecological integrity reduced by land uses outside their boundaries. Research on the status of parks and wilderness areas suggests that species were being extirpated inside of protected areas in spite of their supposed "protection."



It is unlikely that protected areas will be able to conserve biodiversity if they are surrounded by degraded habitats that limit gene flow, alter nutrient and water cycles and produce regional and global climate change that may lead to the final disappearance of these "island parks." Protected areas need to be part of broader regional approaches to land management.

Parks for Life: Report of
the IV World
Congress on National Parks
and Protected Areas (1992)

By the late 1980s, ecosystem-based management and the maintenance of ecological integrity embodied a new way of looking at the management of protected areas: in a regional context. In 1991, the Canadian Environmental Advisory Council noted that, "protected areas must be fully integrated into regional and local land-use planning and into all government land allocation processes" (Protected Areas Vision for Canada, Canadian Environmental Advisory Council, 1991).

The Council also called for "a significant shift in focus within the agencies responsible for planning, establishing and managing protected areas, toward greater leadership, partnerships, flexibility and accountability." This sentiment was echoed in 1992 by the World Congress on National Parks and Protected Areas.

Today, national parks are a key part of the mosaic of conservation lands, totalling 40 per cent of all Canada's protected lands. Yet maintaining the ecological integrity of national parks through improved regional co-opera-

tion within greater ecosystems will not assure the conservation of wilderness or biodiversity at the broader landscape scale. Successful conservation implies a truly national and comprehensive approach that includes national parks, national wildlife areas, heritage rivers, provincial and territorial protected areas, lands protected by Aboriginal peoples, private conservation lands and stewardship of all lands outside of protected areas.

In response to the overwhelming evidence that protected areas alone are not sufficient to conserve wild species, environmental non-governmental organizations forged new citizen-led approaches to conservation, seeking to develop systems of protected areas, corridors and other ecological links. In Canada, this began with the national Endangered Spaces Campaign in 1989, followed by the even broader vision reflected by the Yellowstone to Yukon Conservation Initiative. Conservation at this scale, with national parks as one key part, is the new paradigm of protected areas — from islands to networks.

New Visions: The Yellowstone to Yukon Conservation Initiative

The Yellowstone to Yukon Conservation Initiative belongs to a new global family of far-sighted, broad-based biodiversity strategies that have arisen in response to the lessons of conservation biology.

The Yellowstone to Yukon Initiative is a vision for the future of the wild heart of North America, the vision of a bright green thread, uncut by political boundaries, stitching together 1800 contiguous miles of the Rocky, Columbia and Mackenzie Mountains, all the way from Yellowstone to Yukon.

To protect biodiversity we must protect much larger areas of habitat than anyone previously imagined. We must begin to think and to act on a scale larger than anyone has in the history of the North American conservation movement.

Our mission is to build and maintain a life-sustaining system of core protected areas and connecting wildlife movement corridors, both of which will be further insulated from the impacts of industrial development by transition zones. Existing national, state and provincial parks and wilderness areas will anchor the system, while the creation of new protected areas and the conservation and restoration of critical segments of ecosystems will provide the cores, corridors and transition zones.

Yellowstone to Yukon Conservation Initiative brochure



Regional Empowerment and Responsibility

Some Good Efforts, Still Many Barriers

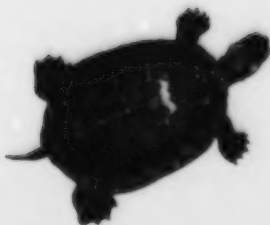
We found excellent examples of promising regional co-operation efforts. A recent Parks Canada workshop summarized the conditions needed for successful regional integration in this way:

"Successful regional integration depends on bringing a full range of staff skills to bear on key issues. The biological knowledge and skills at the park, service centre and national office are important. Of equal importance, are skills in GIS [geographic information systems] analysis, negotiation, diplomacy, conflict resolution and communication. Effective regional integration requires clear goals, management support, a resolve to work together, action plans to "get things done on the ground," credible and professional operational staff in the field, a focus on key results, and an investment in data management and systems."

Managers, Warden Service/Ecosystem
Secretariat Workshop (1998)

The Panel found that Parks Canada is engaged in many different approaches to regional integration. Some examples are:

- at La Mauricie National Park, the "Inhabited Forest" provides an alternative to large-scale industrial logging next to the park boundary. Community residents manage the forest and have adopted a holistic management approach to land use. Their goal is to practice sustainable logging in balance with conservation, tourism, recreation and other forest uses. Such an approach results in a smaller development footprint on lands next to the park;
- genuine long-term efforts have been made at both Riding Mountain and Waterton Lakes national parks to implement the Biosphere Reserve concept, but progress in both areas has been severely hampered by lack of financial support;
- Foothills Model Forest next to Jasper National Park, and the Model Forest by Fundy National Park are examples of promising approaches to integration. The Fundy Model Forest biodiversity objectives are being implemented;
- at tiny national parks such as Georgian Bay Islands and St. Lawrence Islands in Ontario we found strong efforts to co-operate with neighbours, in recognition of the fact that these national parks are small and vulnerable links in regional ecosystems. For example, natural corridors are now part of municipal plans;
- northern national parks, such as Ivvavik, provide some of the best examples of regional integration where park management is embedded in land claim agreements through co-management boards. In these cases, the national park is part of a First Nation's traditional territory where land use and wildlife management practices outside the park boundary are integrated through boards, hunter-trapper committees, renewable resource councils and other instruments. Strong community participation and legally-defined partnership terms are key elements of these arrangements;
- in other cases, regional integration work is being carried out through less formal but close working relationships with provinces, territories, First Nations, municipalities or private landowners.



Waterton-Glacier International Biosphere Reserve

"Biosphere Reserves are internationally recognized by UNESCO's (United Nations Educational, Scientific and Cultural Organization) Man and the Biosphere Program. They promote and demonstrate a balanced relationship between people and nature. Biosphere Reserves are working examples for land management, and sustainable development. They support research, monitoring, and education." (Waterton Biosphere Reserve brochure)

The Waterton-Glacier International Biosphere Reserve is one of five Canadian biosphere reserves. It is centred on Waterton Lakes National Park in the southwestern corner of Alberta. The Biosphere Reserve has no fixed boundaries. Its "Zone of Co-operation" extends outward in all directions. Waterton was the first Canadian national park to receive Biosphere Reserve designation in 1979. Waterton's unusual landscape — where the mountains meet the prairie — gives the Waterton Biosphere Reserve its characteristic plants and animals, many of which are rare or absent from the rest of Canada.

The Biosphere Reserve's "Zone of Co-operation" supports many resource uses such as forestry, ranching, farming, and oil and gas extraction. The Biosphere Reserve seeks out solutions to environmental problems by involving local communities. The goal is to encourage a balance between development and conservation of natural resources through public information, education, research, and monitoring. The Biosphere Reserve's Management Committee is comprised of area residents and defines goals and programs for the Biosphere Reserve.

Despite these successes, we observed that some park managers are reluctant

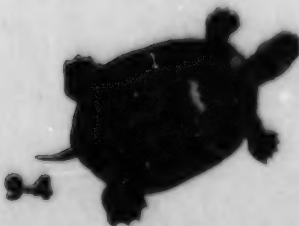
to work towards ecological integrity objectives beyond park boundaries, particularly where resource and land use are in conflict, or where there is fear of political repercussions from the federal, provincial or territorial level. Varying national, provincial or territorial land use objectives around national parks make the task even more difficult. We also observed that many provincial agencies, for example in forestry or wildlife management, are moving in the direction of ecosystem-based management — but these efforts are new and results lag behind plans and policies.

We found that land use conflicts around national parks are typically framed by "conservation versus development" debates, whereas reliable information on the real economic impacts of land use alternatives is usually absent. This makes it more difficult to effect land or resource use change to support ecological integrity, since the economic benefits of conservation are under-valued.

The Panel heard and observed that:

- government and private land managers in greater park ecosystems lack a common vision for land use and conservation objectives, making it more difficult for Parks Canada to advocate for conservation outside park boundaries;

- industry seeks security of tenure, permit approval and operating conditions on provincial and territorial lands around national parks, and conservation advocacy by Parks Canada is seen to infringe on these interests;
- local partners, who often depend on volunteers, also lack the resources to participate effectively in greater park ecosystem planning;
- there are few economic incentives for regional co-operation in greater ecosystems, such as tax relief for voluntary conservation efforts by land or woodlot owners;
- regional integration efforts are not matched by a complementary and equal emphasis on community interpretation services outside park boundaries in greater park ecosystems;
- Parks Canada does not have sufficient specialized staff trained and experienced in consultation and liaison with communities or other governments. While many existing staff are very competent in this area of work, they are hard-pressed to keep up with their obligations in the park, let alone dedicate sufficient time to regional integration. This problem is not unique to Parks Canada.
- high turnover of senior park staff makes it more difficult to sustain consistent working relationships in neighbouring communities and jurisdictions. With high staff turnover, there is an increased risk of inconsistent approaches to regional integration. This inconsistency erodes both public and staff trust;





Elson graze in an enclosure on the edge of Waterton Lakes National Park; the park is bordered by ranches and farms. Blackbird Design

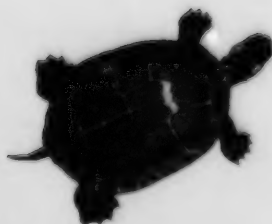
- regional integration depends on a comprehensive approach to management including participation by provinces, territories and the federal government. Such an approach contrasts with most resource or land management agencies, including Parks Canada and many provincial agencies, which are characterized by specific missions, specialized organizational structures, and division of problems into narrow tasks;
- Parks Canada's relationship with environmental non-governmental organizations is uneven across the country. We observed parks with little or no contact with local environmental non-governmental organizations. Others experienced an adversarial stance with conservation groups and still others reported a strong and positive co-operative effort. Sustained and productive partnerships appear to be the exception, not the rule.

Principles for Regional Co-operation

Successful regional integration of land uses in and around national parks depends in large measure on a common vision for the greater ecosystem. Without doubt, the ecological integrity in national parks and the maintenance of regional biodiversity and ecological processes depends on Parks Canada's ability to co-operate with park neighbours. Parks Canada's contribution at the regional level is to manage its lands and waters to the best of its ability, while encouraging others to do the same for lands and waters under their jurisdiction.

We suggest three principles for successful regional integration of national parks within their respective greater park ecosystems:

- **empowerment** - Parks Canada staff and their provincial or territorial counterparts, along with First Nations and other partners, need to have both authority and accountability in order to co-operate effectively on ecosystem-based management;
- **responsibility** - the full responsibility for ecological integrity in national parks rests only in part with Parks Canada. The integrity of greater park ecosystems depends on responsible actions by all land and water users in the region;
- **regional contribution** - in order to earn the respect of its partners, Parks Canada needs to make a contribution to the region, but so too must park neighbours contribute to the success of meeting national park ecological integrity objectives. Perhaps the most important contribution Parks Canada can make is to work with the provinces and territories, First Nations, and other partners to promote and facilitate a common vision for the greater park ecosystem.



Regional integration is most likely to succeed when it is defined within the context of greater park ecosystems, but also within cultural boundaries such as Aboriginal peoples' traditional territories. When cultural and ecological boundaries are considered holistically, and political boundaries are overcome, regional ecosystem-based management is possible and the ecological integrity of national parks can be maintained.

Parks Canada's responsibility is to protect the ecological integrity of national parks within the region, share knowledge about parks and greater park ecosystems, advocate for conser-

vation principles and lead by doing to influence other land users in the region.

The diversity of experience and conditions across Canada led the Panel to avoid recommending a focus on only one regional integration model, such as Biosphere Reserve or Model Forest. Parks Canada must use the full range of regional integration tools available, from legal agreements to informal arrangements. Regional integration approaches will vary across the country. There is no single formula for success that is applicable to all national parks in the system.

Regional Co-operation and National Goals

The State of the Parks 1997 Report shows that more than 85 per cent of ecological stresses are regional in scope. Many stresses originate from outside park boundaries. These stresses include impacts from adjacent land use activities such as logging and mining, agriculture, tourism development, sport hunting and water pollution.

The Panel found that Parks Canada has acknowledged regional co-operation as an essential part of maintaining the ecological integrity of national parks. Much good work is being done, yet there are still comparatively few examples that have led to real beneficial changes in land uses adjacent to national parks. Numerous submissions to the Panel described cases where Parks Canada, despite clear threats to the ecological integrity of a national park, failed to intervene effectively in land use decisions or environmental assessments of major projects just outside park boundaries.

Working with Other Governments

Regional co-operation to maintain the ecological integrity of Canada's national parks, along with the entire network of protected areas, depends on the participation of federal, provincial and territorial governments. About two-thirds of Canada's protected areas are managed by the provinces and territories, with the provinces maintaining jurisdiction over most resources and land uses around both national and provincial parks. First Nations governments co-operate with both levels of government through land claims agreements, treaties, or voluntary arrangements.

A range of co-operative federal and provincial/territorial policies and programs are available to support Parks Canada's regional co-operation initiatives. These include:

- Canada Forest Accord;
- Wildlife Policy for Canada;
- National Accord for the Protection of Species at Risk;
- Federal Policy on Wetlands Conservation;
- provincial and territorial protected areas strategies;
- Whitehorse Mining Initiative;
- Canadian Biodiversity Strategy.



Wildlife move freely across the Canada/United States border between Waterton Lakes National Park (Alberta) and Glacier National Park (Montana). P. Wilkinson



The federal government retains considerable authority within its jurisdiction regarding fisheries, endangered species, migratory birds, navigable waters and environmental impact assessment in the provinces and territories. Within the shared jurisdiction over environmental management, these federal roles and responsibilities could be better employed to support the maintenance of ecological integrity in ecosystems that encompass national parks. Federal

actions must also be sensitive to concerns from provincial and territorial governments regarding interventions in what are seen to be local issues.

Federal ability to support the ecological integrity of national park ecosystems, particularly in the North, is sometimes impeded by conflicting departmental policies. Federal agencies, such as Natural Resources Canada and Indian Affairs and Northern Development, have a mandate to support economic development that is not always consistent with Parks Canada's efforts to maintain ecological integrity in greater park ecosystems. There is room for improved inter-departmental co-operation among federal resource and land management agencies in the maintenance of ecological integrity around national parks. Furthermore, any federal decisions that may impair the ecological integrity of a national park should trigger the Canadian Environmental Assessment Act.

Parks Canada has established management partnerships with First Nations in many newer parks including Gwaii Haanas and northern national parks established through land claims, such as Ivvavik and Kluane. At the national scale, however, much work remains to be done in creating genuine and long-lasting partnerships.

RECOMMENDATIONS

9-1. We recommend that the Minister work with the provinces and territories to protect the ecological integrity of the national, provincial and territorial network of protected areas through formal agreement. In developing the agreement, include First Nations governments, municipalities, non-government organizations and industry as partners in the discussions.

We recommend that the Minister initiate a federal inter-departmental memorandum of understanding to support the maintenance of ecological integrity of national parks by ensuring consistent policies and plans with respect to lands under federal jurisdiction in greater ecosystems that include national parks.



9-2. We recommend that the Minister requests the government of Canada to use existing federal government authority within its jurisdiction regarding fisheries, endangered species, migratory birds, long range air pollution, navigable waters and environmental impact assessment to support the maintenance of ecological integrity in national park ecosystems. (A similar action was also recommended with respect to boreal forest management by the Senate Subcommittee on the Boreal Forest, 1999.)

9-3. At the provincial and territorial level, we recommend that Parks Canada undertake regular and continuing dialogue among senior executives of federal, provincial and territorial agencies responsible for land and resource management to support improved co-operation on the maintenance of ecological integrity in national parks and other protected areas. For example:

- encourage the establishment of co-operative planning structures to address regional integration of national parks. When such an inter-agency co-ordination structure is

created, focus on providing guidance and resources needed to sustain on-the-ground efforts, rather than on imposing a new hierarchy to oversee all aspects of work;

- support adoption of provincial legislation on conservation easements where it is absent;
- participate in regional sustainable development strategies and in regional management plans where they may affect a national park's ecological integrity. Promote the maintenance of biodiversity and ecological processes within greater park ecosystems as underlying principles of these strategies.

9-4. We recommend that Parks Canada, in partnership with the provinces and territories where appropriate, improve regional co-operation with Aboriginal peoples in two ways:

- use co-operative management arrangements set out in existing land claim agreements or treaty provisions, to work with First Nations on maintaining ecological integrity in greater park ecosystems;

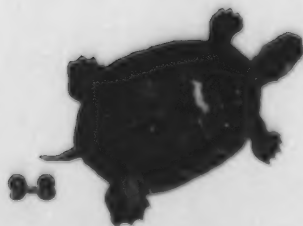
Innovative Approaches to Protected Areas and Special Management Zones: British Columbia's Northern Rockies Precedent

Located in northeastern British Columbia, the 4.4 million hectare Muskwa-Kechika remains one of North America's last true wilderness areas south of the 60th parallel.

Through dedication and hard work, local land and resource planning groups reached consensus on land-use in the Muskwa-Kechika. They recommended that an advisory board be appointed to advise government on management of the area and that a special trust fund be created to support special projects and planning initiatives within the Muskwa-Kechika.

The management plan for the Muskwa-Kechika area balances resource management with conservation, making it an example of how interests that were once in competition have found a way to co-exist on the land. More than one million hectares will be permanently protected with the creation of 11 new protected areas. These areas are surrounded by more than three million hectares of legislated special management zones where wilderness and wildlife habitat will be maintained while resource development such as logging, mineral exploration and mining, and oil and gas exploration and development will be allowed in a way that is sensitive to wildlife and environmental values. In all, the Muskwa-Kechika is the largest and most innovative package of protected areas and special management zones in British Columbia.

from British Columbia Land Use Co-ordination Office (1999)



- where land claim agreements do not exist, explore ways to establish other arrangements such as memoranda of understanding, joint advisory bodies, or other arrangements to provide an interim means of maintaining ecological integrity, without prejudice to future land claim agreements.

9-5. We recommend that Parks Canada increase its participation in specific local resource management arrangements with provincial or territorial agencies that have jurisdiction in greater park ecosystems. Systematically participate in municipal and regional government planning and regulatory processes. Adopt a supporting role in the conservation of lands around national parks by:

- initiating studies of habitat protection opportunities outside park boundaries in greater park ecosystems and beyond. Co-operate with neighbouring jurisdictions to provide supplementary wildlife habitat outside of park boundaries;
- working with neighbouring jurisdictions and industry to develop co-ordinated access management plans (such as road and trail density standards) on lands in and around the park;
- working with neighbouring jurisdictions and industry to develop resource use or operating conditions on lands around national parks that support the maintenance of ecological integrity and address industry requests for secure tenure.

Supporting Partnerships

As we discuss above, successful regional co-operation depends on long-term support for management partnerships with other governments — the provinces, territories, First Nations and municipalities. Improved partnerships with non-government organizations, private landowners and industry also have key roles to play.

Although the Panel found successful national and local examples of such efforts, we generally observed a lack of capacity within Parks Canada to maintain regional co-operation efforts over the long term. Little financial support is available nationally to sustain citizen or agency participation in greater ecosystem partnerships.

Rural Economies

According to the federal government, the Canadian economy *"is an economy in which rural Canada also benefits from value-added activity, environmentally astute land management, and new skills and job opportunities"* (federal Speech From the Throne, October, 1999). This vision is entirely consistent with maintaining the ecological integrity of national parks and other protected areas.

The economic impact of national parks and other conservation lands has been well documented during the last decade. For example, the programs of Parks Canada are estimated to contribute \$2 billion to Canada's gross

Elk Island is the only national park in Canada that is fenced off from the surrounding landscape, preventing free movement of wildlife, livestock and people. Parks Canada



domestic product, create 50,000 full-time equivalent jobs, and add \$425 million to the national balance of payments though expenditures made by international visitors (Attridge, 1999). According to Environment Canada, Canadians spent \$11 billion on nature-related activities in 1996 (Environment Canada, 1999). While these economic impacts are significant, so too is the potential for degradation of park ecosystems through over-use. (Chapter 11.)

In spite of the economic impacts at a national scale, small communities may face significant changes from the establishment of national parks and other protected areas. In a submission to the Panel, the Canadian Nature

settings are growing much faster than communities dependent on resource extraction alone. These new economies are driven by service industries and non-labour income. People are moving to beautiful communities to enjoy a high quality of life. While this growth has its own effects on the ecological integrity of protected lands, it points to economic changes that must be understood in order to manage rural land use — and in turn the ecological integrity of protected areas.

The resource industry role in the Canadian economy may change, but will remain important. Industrial land uses in the greater ecosystems around many parks will also continue — but with improved partnership arrangements, the ecological integrity goals of national parks will be better met. To be successful, co-operative partnerships between industry, communities and parks must consider both economics and ecology.

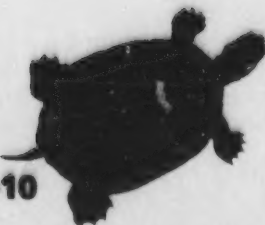
Coal strip mining near
Jasper National Park
P. Wright



Federation has observed that:

"The support of local communities and native people is critical to achieving new national parks. The federal government should provide local communities with the necessary resources to help them secure the benefits of new national parks, and to make the transition to a more sustainable future, as does the Sirmilik National Park agreement. Too often, local communities only start the process after the park agreement has been signed. Val Marie is still waiting for the regional tourism strategy promised under the 1988 Grasslands National Park agreement."

Recent research by the Sonoran Institute on the Rocky Mountains of Canada and the United States shows that many communities in protected wilderness



Working with Industry

Many national and provincial industry organizations support the goals of protected areas, but the Panel heard that industry seeks security of tenure and a stable investment climate outside of parks. Industry also seeks an efficient and timely permit approval process to ensure that investment dollars are wisely spent. At the national

level, industry has made progress in supporting the goals of protected area establishment and ecosystem-based management in three key areas:

- forestry, through the National Forest Accord. The Accord recognizes the Canadian commitment to biodiversity conservation, including the establishment of a system of protected areas;

- mining, through the Whitehorse Mining Initiative. Signed in 1994, the Initiative states industry support for a network of representative protected areas. This endorsement is strengthened with an agreement that the conservation of biodiversity depends on the establishment of core protected areas that are free of mining, in combination with enhanced environmental stewardship in the remainder of the landscape. Unfortunately, application of the WMI principles on protected areas has been uneven across the country. One positive example is the co-operative working arrangement between the Manitoba Mining Association

and the World Wildlife Fund on the establishment of new protected areas through the Endangered Spaces Campaign;

- oil and gas, through the work of the Canadian Association of Petroleum Producers (CAPP). CAPP has publicly supported the national Endangered Spaces Campaign goals and the completion of protected areas strategies in Alberta and the Yukon. In Alberta, CAPP was instrumental in developing an agreement with environmental non-governmental organizations on completion of the protected areas system. CAPP has also endorsed far-reaching conservation visions such as the Yellowstone to Yukon Conservation Initiative and the recently created mosaic of core protected areas and special management zones in the Muskwa-Kechika region of British Columbia. These initiatives are based on the principle of core protected areas coupled with land use management measures to protect wildlife habitat, movement routes and species populations between protected areas. In this way, industry can support the maintenance of ecological integrity in greater park ecosystems.

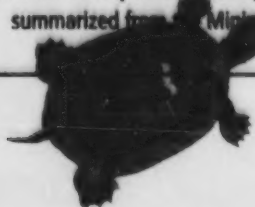
These examples show how industry leaders are co-operating on achieving ecological integrity goals. Improved support for greater ecosystem partnerships will result in improved compliance by local industry operators in meeting the guidelines set by industry leaders.

Mining Association of Canada Endorses Protected Areas

The Mining Association of Canada, on behalf of the mining industry, helped advance a multi-stakeholder process to improve the conditions for mining and resolve land access and environmental issues. The Association took the proposal to the mines ministers of all senior governments at their annual conference in Whitehorse in September 1992. The ministers agreed to become co-sponsors and trustees of the process and named it the Whitehorse Mining Initiative (WMI). Representatives of five sectors of society agreed to participate: the mining industry, senior governments, labour unions, Aboriginal peoples, and the environmental community.

The 1994 Leadership Accord which resulted from the WMI, adopts a strategic vision for a healthy mining industry in the context of maintaining healthy and diverse ecosystems in Canada, and for sharing opportunities with Aboriginal peoples. It calls for: improving the investment climate for investors; streamlining and harmonizing regulatory and tax regimes; ensuring the participation of Aboriginal peoples in all aspects of mining; adopting sound environmental practices; establishing an ecologically based system of protected areas; providing workers with healthy and safe environments and a continued high standard of living; recognition and respect for Aboriginal treaty rights; settling Aboriginal land claims; guaranteeing stakeholder participation where the public interest is affected; and creating a climate for innovative and effective responses to change.

summarized from the Mining Association of Canada Web site



Non-governmental and Volunteer Organizations

It is fitting that 2001 will mark the international Year of the Volunteer. The Panel observed many examples of conservation initiatives led by volunteers across the country. Non-governmental organizations play a key role in regional integration of national parks and other protected area systems. For example, the national Endangered Spaces Campaign led by the World Wildlife Fund is a 10-year national strategy to complete a representative protected areas network. The Canadian Parks and Wilderness Society and the Canadian Nature Federation, as well as a variety of provincial and regional groups, have supported national park establishment and management for ecological integrity for many decades. Many of these organizations have also made major contributions to the Endangered Spaces Campaign. Other organizations, such as the Canadian Parks Partnership, have contributed to park operations, interpretation and outreach. On balance, the Panel found that there is much room for enhanced partnership arrangements between Parks Canada and national environmental non-governmental organizations.

At Waterton Lakes National Park, the Panel observed great success by the Nature Conservancy of Canada in working with landowners willing to conserve their ranchlands adjacent to the park using conservation easements. Once protected, these lands provide important wildlife habitat around the park, contributing to the survival of large mammals and other species.

The Nature Conservancy of Canada is Canada's leading non-profit organization in securing ecologically significant land through the purchase and donation of conservation lands, conservation

easements and other interests in land. By the end of 1999, the Conservancy had secured the conservation values of more than 645,000 hectares of land. The Conservancy works closely with various federal departments, provincial and municipal governments, national and provincial non-governmental organizations, and local land trusts. Outside the conservation community, the Nature Conservancy has established relationships with numerous private foundations and corporations. These arrangements have allowed the Conservancy to engage all land interests in habitat conservation, providing both a leadership and a supporting role as circumstances warrant.

The Nature Conservancy of Canada has expressed interest in making a substantial matching contribution to the Panel's proposed Parks Canada Partnership Fund in support of regional co-operation. (Recommendation 9-7.)

In 1999, the National Round Table on the Environment and the Economy assessed a variety of approaches to protecting our natural heritage including completing and protecting the national park system, exempting ecological land gifts from capital gains, leveraging habitat conservation through a stewardship fund, and enhancing ecological decision-making. A background paper prepared for the Round Table recognized the value of co-operative agreements around national parks and identified the need for a special Partnership Fund.

"The Ontario protected areas system has benefited from the Ontario Parks Legacy 2000 program, a strategic partnership between Ontario Parks and the Nature Conservancy. Under the program, Ontario Parks provides the Conservancy with yearly venture capital to invest creatively in the expansion and creation of provincial nature reserves. In return, the Conservancy delivers many times the provincial investment in value of land protected. A jointly developed conservation strategy guides the Conservancy's land acquisition efforts."

Nature Conservancy of
Canada, submission
to the Panel



From the many presentations made to the Panel across the country, it became clear that the need for sustained partnership support is great, and the scope of important tasks varied and complex. For example, a Partnership Fund is required to sustain, expand and improve the effectiveness of Biosphere Reserves, Model Forests around national parks, charitable land trusts, and innovative industry initiatives. A Partnership Fund would also enhance citizen-led efforts such as the Yellowstone to Yukon Conservation Initiative, private landowner conservation, "Friends of the Parks" groups, and provide improved means for communities to benefit from parks.

The federal government has set out a strategy to ensure the quality of Canada's environment, build stronger communities and strengthen the relationship with Canada's Aboriginal peoples. The government "recognizes the need to build partnerships with communities and to renew its relationship with voluntary organizations that serve and sustain them" (1999 federal Speech From the Throne). Ensuring the ecological integrity of greater park ecosystems through enhanced support for regional partnerships is one of the most promising ways to implement these commitments.

RECOMMENDATIONS

9-6. We recommend that the Minister launch a national partnership program to protect the ecological integrity of national parks, by establishing a Partnership Fund of \$20 million per year.

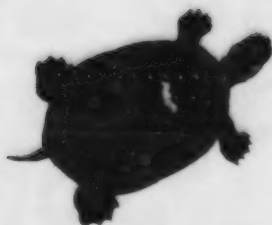
Apply the Partnership Fund to a broad range of co-operative agreements to help maintain the ecological integrity of national parks and other federally administered conservation areas, such as Canadian Heritage Rivers. The Panel recommends that the Fund be administered by Parks Canada and that:

- a board be appointed to make recommendations on the criteria for the Partnership Fund, the annual distribution of grants, and performance measurement;
- the Fund include support for a full range of co-operative arrangements, acquisition of wildlife habitat, conservation easements, industry and private landowner partnerships, participation by Aboriginal peoples and non-governmental organizations;
- the government of Canada seek matching private funding, for

example through private land trusts or industry;

- the Fund be competitive in nature and focused on measurable results toward maintaining the ecological integrity of the national park system and other federally-administered protected areas;
- as part of the Partnership Fund initiative, publish national guidelines for establishing co-operative management arrangements, including co-financing, that support the maintenance of ecological integrity.

We recommend that the key target for the \$20 million Partnership Fund be to support co-operative agreements for all existing and proposed national parks. The Fund could secure key supplementary habitat around national parks and also help sustain co-operating associations. Following new park establishment, the Partnership Fund could help secure appropriate community benefits from new parks, for example training or development of services that support the maintenance of ecological integrity.



9-7. We recommend that Parks Canada use the full range of existing regional co-operation models to enhance maintenance of biodiversity and ecological processes in the greater ecosystem of each national park. Evaluate the effectiveness of each model for its potential contribution to land use change in support of maintaining ecological integrity. Example models include:

- Biosphere Reserve (such as Waterton and Riding Mountain);
- special management zones (Muskwa-Kechika region of British Columbia);
- Model Forest (such as Fundy and Jasper);
- "Inhabited Forest" (La Mauricie);
- greater ecosystem planning projects (Fundy);
- regional planning commissions or advisory boards.

9-8. We recommend that Parks Canada develop and support partnerships with First Nations, conservation groups, co-operating associations and the business community to assist in a variety of research, monitoring and public education activities in support of maintaining ecological integrity in greater park ecosystems.

9-9. We recommend that Parks Canada develop partnerships with charitable land trusts to secure habitat adjacent to Canada's national parks, in co-operation with private landowners to acquire critical habitat adjacent to national parks or using conservation easements to create zones of co-operation around parks.

Economic and Legal Implications

The National Parks Act and Regional Co-operation

Canada's National Parks Act endorses the ecological integrity of national parks as the paramount concern of planning and human use management, but makes no specific provision to enable regional integration in support of ecological integrity. Support for regional integration is implied through co-operative management with First Nations where a national park is established through land claims agreements.

While the National Parks Act is not explicit on regional integration due to the Act's focus on federally-owned lands within parks, Parks Canada's operational policies clearly support collaborative management to achieve greater park ecosystem conservation goals:

Parks Canada will take the lead role in establishing integrated and collaborative management agreements and programs with adjacent landowners and land management agencies. Parks Canada will seek mutually satisfactory solutions to trans-boundary concerns associated with the management of shared ecosystem components, the effects of adjacent land use practices on park ecosystems, or the effects of park management practices on the use of adjacent lands. Parks Canada will also participate in regional land use planning and management initiatives sponsored by other jurisdictions to encourage the understanding and co-operation of other agencies in protecting park ecosystems, and for Parks Canada to better understand the management concerns of those other agencies.

Parks Canada, Guiding Principles and Operational Policies (1994)



The current National Parks Act and proposed amendments do not incorporate specific regional co-operation provisions upon which park managers could rely to justify their work on

issues relating to the surrounding landscape. The Panel found, however, that existing Parks Canada policies encourage park managers to get involved in issues beyond the park boundaries that affect ecological integrity, even though the organization's current culture is not always supportive of such actions.

More systematic and effective regional integration efforts are held back by park managers who are concerned about moving beyond their mandate. Adding a clarification of statutory duties, powers and responsibilities with respect

to regional integration under the National Parks Act is one option to make regional integration efforts more commonplace. (See Appendix C for

legal options on regional co-operation.) Within Parks Canada, stronger policy and management direction is needed to ensure more effective regional co-operation.

Significant projects and activities, such as forestry roads, are not always subject to environmental assessment unless they trigger a federal environmental assessment under the Canadian Environmental Assessment Act. In other instances, certain activities may be covered by a conditional exemption or class environmental assessment that does not adequately predict or mitigate the anticipated effects of a project on surrounding landscapes, including national parks. In such instances, park managers should have the ability to require that an environmental assessment be done. At present, the most that can typically be done is a "request" to the appropriate provincial minister under provincial legislation (as was done recently by Pukaskwa National Park staff) or the federal Environment Minister under the Canadian Environmental Assessment Act. However, requests for specific environmental assessments are rarely granted under the discretionary powers usually included in existing legislation.

"Protecting habitat on private lands is the key to conserving Canada's biodiversity and ensuring that Canada's protected areas — public and private — continue to serve the purpose for which they are intended. Canada's national parks system is still 40% incomplete and individual parks are not necessarily protecting the full complement of species as planned. Measures are needed to establish new parks and protect the ecological health within and surrounding existing national park borders. An important component of ensuring the integrity of Canada's national parks will be enlarging existing parks through land acquisition and creating protective buffers around parks through co-operative arrangements with landowners"

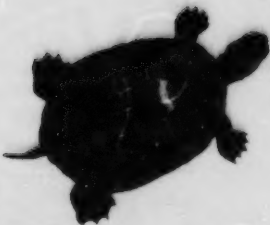
Nature Conservancy of Canada,
submission to the Panel

RECOMMENDATIONS

9-10. We recommend that the Minister require Parks Canada to maintain and enhance the ecological integrity of the parks by working in co-operation with adjacent landowners, and by participating in regional land use planning, environmental assessments, and other decision-making processes where outcomes are reasonably expected to affect the ecological integrity of a national park.

9-11. We recommend an amendment to the National Parks Act to incorporate a consequential amendment to the Canadian Environmental Assessment Act, requiring the Minister responsible

for national parks to undertake an environmental assessment when adverse environmental impacts on a national park are expected to occur. (Such an assessment could be done on the initiative of a request by a provincial or territorial government, members of the public, or on the Minister's own initiative. The federal Environment Minister would retain authority to require an environmental assessment under an existing provision of Canadian Environmental Assessment Act.) Suggestions for specific wording of the National Parks Act are contained in Appendix C.



Canadian Tax Laws

Canadian tax laws continue to impede voluntary participation in local conservation efforts on private lands. The Panel heard this same message from ranchers in Alberta to private woodlot operators in the Maritimes. Landowners showed how they would be penalized through the tax system for maintaining land uses favourable to

maintaining ecological integrity around national parks. For example, these barriers contribute to the conversion of ranchlands to residential properties which in turn fragments wildlife habitat. The tax system also leads to liquidation of timber on private woodlots that may have significant habitat conservation value.

Capital gains tax is now levied when property or conservation easements are donated for conservation purposes. According to the Nature Conservancy of Canada, 75 per cent of the increase in the value of the land is deemed under the Income Tax Act to be included in the landowner's income when property or land rights are donated, even though the landowner receives no actual funds for the transfer. Incurring capital gains tax on a land dona-

tion places that donation in an inferior position compared to selling the land.

In the United States, landowners can donate property through a "bargain sale" when property is sold to a charitable organization for less than fair market value. The difference between the market value and the selling price becomes the charitable contribution to the organization. Charitable tax laws in Canada prohibit tax receipts in such circumstances, as the donation is conditional upon the purchase and therefore not a true gift.

Both capital gains tax and the inability to negotiate bargain sales present significant disincentives for private land conservation in Canada. Removing these barriers is essential to promoting conservation on lands adjacent to national parks. The Nature Conservancy of Canada estimates that with a capital gains exemption for ecological gifts, the federal government would only forego approximately \$11 million in annual tax revenue, compared to the annual protection of land worth \$40 million. Over 30 years, this tax measure would secure 250,000 hectares of lands in fee simple ownership by conservation charities, and 250,000 hectares more to be protected by conservation easements.

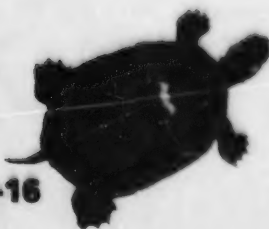
The Panel heard an urgent call to create economic and other incentives to improve private land use practices around parks and to support the retention, rehabilitation and management of natural habitats in greater park ecosystems. A recent report by the Senate Subcommittee on the Boreal Forest (1999) echoed these concerns and recommended tax incentives to encourage the reforestation of marginal agricultural land adjacent to national parks and other protected areas. The Senate Subcommittee further suggested tax incentives for landowners who forego cutting of woodlots adjacent to national park or other protected area boundaries.

New Trust Fund Sets a Precedent for Co-operative Management

A special trust fund will be created for the Muskwa-Kechika Management Area in British Columbia. The provincial government will contribute to the trust annually. Private sector donations to the trust fund will be encouraged; a company or interest group may "champion" or support a project. Proposed expenditures from this fund will be reviewed by an advisory board before being recommended to government for approval.

The fund will not replace government budgets but will support planning initiatives and special projects. These include: enhancing wildlife populations and habitat; conducting research into wildlife biology and ecology; supporting wildlife, recreational, and cultural inventories and mapping; supporting planning initiatives for resource development activities, wildlife, recreation and parks; developing and producing public education materials and programs about the Muskwa-Kechika area and its management; and supporting programs aimed at involving and training youth from local communities in resource-related career opportunities.

from British Columbia Land Use
Co-ordination Office (1999)



RECOMMENDATION

9-12. We recommend that the Minister advise the government of Canada to amend the Income Tax Act to exempt ecological gifts from capital gains tax and allow for the part sale/part donation ("bargain sale") of land.

Biodiversity Commitments

According to the 1998 Report of the Commissioner of the Environment and Sustainable Development, Canada's biological diversity is increasingly threatened by pollution and the loss of wildlife habitat. The Commissioner reported that Canada has been slow to meet its obligations under the United Nations Convention on Biological Diversity.

The Canadian Biodiversity Strategy of 1995, Canada's contribution to the International Convention on Biodiversity, refers to mechanisms such as the Biosphere Reserve Program as a way to work with local governments, landowners and community interests. The Parks Canada policy says that:

By administering protected heritage areas, Parks Canada plays a major role in implementing the Convention on Biological Diversity, adopted in Rio de Janeiro in 1992. In fulfilling its mission in this regard, Parks Canada promotes the protection of ecosystems and natural habitats, the maintenance and recovery of viable wild populations of species in natural settings,

as well as the environmentally sound management of surrounding or adjacent areas.

Parks Canada, Guiding Principles and Operational Policies (1994)

One key action step of the Strategy is to "Support and promote the development of agreements between governments and local indigenous communities, property owners and/or private corporations for the voluntary allocation of land for conservation purposes" (Canadian Biodiversity Strategy, 1995).

Although Canada is a signatory to the Convention, and Parks Canada policies support implementation of the Canadian Biodiversity Strategy, action has been uneven across the country. The Panel found that provincial and territorial land use legislation and policies around national parks are frequently in conflict with the goals of the Biodiversity Strategy and park objectives. With respect to Parks Canada's contribution, there are no deadlines for action steps and annual progress is not measured in the State of the Parks Report.

RECOMMENDATION

9-13. We recommend that Parks Canada use the State of the Parks Report to measure progress toward the implementation of those portions of the Canadian Biodiversity Strategy that are within Parks Canada's mandate.



SECTION F: USE AND ENJOYMENT



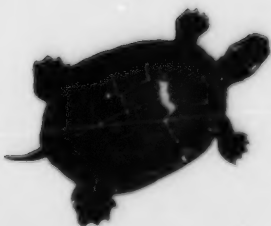
Park staff at Point Pelee
National Park shows a mon-
arch butterfly to a park visitor
L. Cave/Parks Canada

CHAPTER 10: INTERPRETATION AND OUTREACH

Conveying the significance will help [people] understand why it is necessary to protect these places while providing more in-depth knowledge will allow them to make better choices, both personally and politically, about how to protect [parks]. People protect what is meaningful and valuable to them. Canadians will actively support parks when they feel a connection to the place or what it represents. It follows that if our objective is to protect our national parks ... one of the critical elements is to get people to care about and value them ...

Parks Canada has a tremendous opportunity to facilitate connections by providing meaningful learning experiences that directly contribute to people's knowledge ... and foster their support for the conservation of national parks ... Heritage presentation is the way to gain public support. Without continuous public support in the future, Parks Canada is unlikely to achieve its ecological integrity objectives.

Parks Canada
"The Role of Heritage Protection in Achieving
Ecological Integrity" (1999)



Interpretation is a key purpose for national parks. Interpretation is a form of education and a means of helping visitors to enjoy national parks, but the purpose of interpretation is not just to provide factual information about ecological integrity and national parks. Interpretation helps make people aware of the value and purposes of national parks, and what uses are appropriate in national parks, so that ecological integrity remains unimpaired. Visitors and others need to be aware that visitor use does impose stress on national parks, often to a serious extent. Through an improved connection with protected areas, park visitors and non-visitors alike can learn to take responsibility for the use and enjoyment of national parks and to make personal choices regarding sustainable actions in their daily lives.

Parks Canada is currently not well-positioned to serve its target audiences in terms of this vital education role. In recent years, there have been serious cuts to interpretation staff and budgets; many skilled staff have been lost. Much of Parks Canada's existing interpretation information, assets and materials are out-dated. More effective communication on ecological integrity requires attention to policy, strategy, partners, and evaluation related to interpretation. Public support will come from strong messages emphasizing the positive aspects of ecological integrity. Interpretation can be delivered in a variety of ways, from interactions with park visitors to providing information to non-visitors. Parks Canada needs to explore new media and means of delivering interpretation messages to non-traditional audiences.

Interpretation Issues

In this chapter, we examine several interrelated issues:

- the need for policy and strategy that will elevate the importance of interpretation;
- the need to develop interpretation messages that will help people in national parks and urban areas become aware of what uses and behaviours support the protection of ecological integrity;
- identification of various audiences and types of interpretation messages appropriate to those audiences, the ways in which interpretation can communicate messages about ecological integrity, and how interpretation messages should be delivered;
- the importance of partnering with Aboriginal peoples and others to develop and deliver ecologically-oriented interpretation messages;

- the role of marketing in delivering appropriate interpretation messages.

A closely related topic pertaining to policies on allowable and appropriate uses within national parks is examined in Chapter 11.

Confusing Terminology

In recent years, Parks Canada has used "heritage presentation" as an umbrella phrase for the traditional terms "interpretation" and "outreach," although other terms, such as "awareness," "communications," and even "marketing" have also been used in publications and presentations — to the confusion of both the public and Parks Canada staff. "Heritage presentation" is a term most people equate with historical heritage, not natural heritage and certainly not ecological integrity.



Both "interpretation" and "outreach" continue to be part of Parks Canada language; for example, the State of the Parks 1997 Report describes both terms as elements of heritage presentation: *"Interpretation programs inside parks, and outreach programs outside park boundaries are the two main elements of heritage presentation. Together they create a vital link between people and ecosystems"* (Parks Canada, State of the Parks 1997 Report, p. 49).

There is no significant difference between the terms "interpretation" and "outreach," except that interpretation is aimed at people who are actually visiting a park, while outreach is aimed at non-visitors. To avoid confusion, Parks Canada should use only these two simple and easily understood terms — interpretation and outreach — in its education and information efforts. In this chapter, we use "interpretation" as a general term unless our discussion specifically addresses communication aimed at non-visitors.

Why is Interpretation Important?
Through interpretation, understanding; through understanding, appreciation; through appreciation, protection.

Tilden (1967)

Interpretation about Canada's national parks is important for the following reasons:

- to create a broader understanding of ecology in general and ecological integrity in particular;
- to create a broader appreciation of the parks themselves;
- to create a better understanding of the need to be responsible in terms of appropriate activities in parks;
- to help people understand how the existence of national parks is part of the web of nature that includes not just majestic mountains, plains, rivers, and lakes, but also urban wildlife such as robins and cardinals, foxes and raccoons;
- to create a better understanding of critical issues that affect the maintenance of a healthy environment.

Focus Interpretation on Ecological Integrity

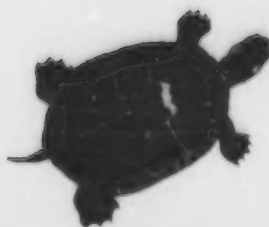
One way to ensure that our parks are preserved for future generations is to educate and involve the public. By encouraging participation in various parks programs, Parks Canada can help ensure that school children, stakeholders and visitors come to appreciate ecosystem-based management and become responsible stewards of their heritage and ambassadors for national parks.

Parks Canada, State of the Parks 1997 Report, p. 49

Ecological integrity should be Parks Canada's primary communication message. Despite many fine examples of successful interpretation efforts that highlight ecological integrity, it is not

yet the fundamental interpretation message across the entire park system. Achieving this goal will involve:

- positioning interpretation as a key element of protecting ecological integrity;
- integrating information at a variety of scales — global, national, regional, and individual parks;
- including all relevant information, not just "good news" about natural history but also the hard realities and critical issues about stresses that affect national parks;



- connecting with new audiences such as educators, youth, urban dwellers and other levels of government — groups that to date have not been a major focus of national park interpretation;
- partnering with Aboriginal peoples to interpret and deliver ecological integrity messages.

Elevating the importance of interpretation in achieving Parks Canada's mandate will require:

- organizational links with all Parks Canada staff;
- appropriate levels of resources and personnel;
- developing a core of professional full-time staff;
- reaching and engaging a wide range of people both within and outside of national parks;
- the use of a variety of appropriate and innovative communications methods;
- a better understanding of how to effectively communicate with people;
- a clear definition of what needs to be communicated.

Without effective interpretation and education, park visitors do not understand the harm in feeding wildlife. R. R. Dore/Parks Canada



Interpreting Ecological Integrity: Interpretation of Critical Issues

Interpreting ecological integrity and critical issues is not an entirely new concept to Parks Canada. The 1990 Canadian Department of Environment's Green Plan promoted interpretation to develop environmental citizenship. Then Assistant Deputy Minister A. Lefebvre-Anglin wrote that Parks Canada was making extensive efforts to support critical issues interpretation, *"ensuring that visitors understand the role parks and other natural areas play in the maintenance of a healthy environment. It means using some of the very real management issues we face to illustrate broader environmental challenges and it means using parks as ecological benchmarks and examples of the sustainable use of resources."*

Spurred on by Green Plan resources and the focus on environmental stewardship, park interpreters began to develop and implement a variety of interpretation initiatives focused on critical resource issues. Just ten years later, the situation has changed.

We have heard and observed that:

- policy and management direction regarding the importance of interpretation in achieving the ecological integrity mandate is weak;
- professional interpretation staff have largely been cut from the organization and replaced by seasonal interpreters;
- many interpretation staff are neither educated nor trained to understand these complex issues;
- there is a perception among some park interpreters that visitors do not want to "learn" or be "depressed" while on vacation and that critical resource issue interpretation is both unwanted and depressing;

Interpreting Critical Issues to the Public

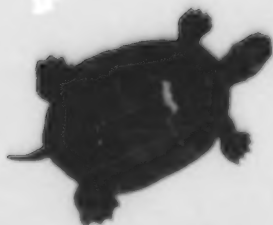
In the late 1980s, the United States National Park Service launched a program to train and assist staff in addressing the critical ecological issues facing the national parks, and the nation as a whole, through interpretation and outreach programs. The approach recognized that park interpreters needed scientific training and resources in order to address these complex issues.

With the help of university personnel who researched and developed training materials in the science and communication of these issues, the National Park Service launched the "Clearing the Air" program. It addressed the impacts associated with acid deposition in national parks, national historic sites and monuments. The following year, the focus was the loss of biological diversity, in parks, the nation, and the world through a program called "Biological Diversity: It Makes All the Difference in the World." These were the first of a series of specific initiatives associated with critical resource issues interpretation.

Sample products and programs include:

- a resource training manual including scientific briefings, reference material, suggestions for developing interpretation programs, a slide set, and sample interpretation programs to help train interpreters in the scientific and interpretation skills associated with acid rain and biodiversity;
 - a series of possible personal services programs, exhibits, publications, and displays for interpreting loss of biological diversity and acidic deposition at natural and historic sites throughout the system;
 - an interpretation slide presentation and series of programs for chambers of commerce and municipal governments;
 - an initiative that developed curriculum for kindergarten to grade 8 on biodiversity and on the Southern Appalachian Biosphere Reserve.
-

- the separate funding pool associated with the Green Plan disappeared before the staff, means, and media for delivering critical issues messages were well developed and distributed throughout Parks Canada;
 - there is a perception that the environmental stewardship initiative promoted by the Green Plan bordered on inappropriate advocacy and that Parks Canada should not advocate that the public get involved in environmental issues;
 - there is increasing reliance on non-personal interpretation through visitor centres, displays, and signs — media through which it is difficult to relate to the individual and to empower the individual;
 - given the limited staff and resources, interpretation programs are often geared to the lowest common denominator of knowledge; more complex issues that might be more suitable for some audiences have been dropped;
 - interpreters are often functionally separated from the ecosystem science and resource management side of Parks Canada.
- Critical issues are not being widely interpreted or communicated. Among Canadians at large there is little awareness that the seemingly pristine majesty of many national parks is masking serious environmental problems. For instance, high-altitude snow in Banff and Jasper national parks contains elevated levels of air-borne pollutants that eventually flush into rivers and lakes within the parks and surrounding regions, damaging ecosystems in a variety of ways. This situation is invisible to most park visitors and no interpretation information on the subject is available.
- Creative displays addressing critical ecological integrity issues do exist. Signs or brochures carrying simple resource management messages such as: "fragile dune area," "area left for restoration," or "tread lightly" are common throughout the parks. These



The Reality of Human-Bear Interactions

La Mauricie National Park's interpretation program explains that a particular black bear's feeding patterns in and around campgrounds resulted in it being shot after a failed relocation effort. The message — that the bear died because of conflict with human use — is harsh but powerful. To be effective, interpretation must not shy away from such hard messages.

types of messages are important to communicate to visitors. They should be developed to reveal and communicate the underlying messages associated with protecting ecological integrity.

Interpreting ecological integrity is part of the active management required to restore and maintain integrity. Park visitors, partners, and the public at large must understand:

- the local, national and global role of protected areas;
- that ecological integrity is fragile — even apparently wild and beautiful areas are not pristine;
- the significance of threats toward ecological integrity;
- most importantly, what people can do to help.

Achieving this level of understanding requires a skillful blend of communication techniques with current scientific knowledge in a way that relates to the audience and engages them in positive actions and outcomes.

Visitors are often unaware that their presence in and use of the park affects ecological integrity to some degree. Few interpretation programs deal adequately and honestly with human use.

To begin the journey toward understanding and embracing ecological integrity protection — and their role in it — visitors (and other audiences) should be told the critical story about internal threats to ecological integrity. Increased awareness may lead to a reduction in inappropriate uses and modification of otherwise appropriate uses to minimize stress on ecological integrity. Similarly, the reasons for use and activity restrictions that are designed to protect ecological integrity should be clearly communicated.

Examples include:

- the removal of overflow campgrounds in Banff National Park;
- the institution of a campground reservation system in La Mauricie National Park;
- the closing of trails in various parks in order to protect wildlife.

When visitors understand why their activity or use has been curtailed, they are more likely to support the restrictions.

Similarly, many park visitors still have little understanding of park wildlife; the belief persists that wild animals are harmless. Inappropriate behaviour results in human/animal conflicts and the animal is usually the loser. Interpretation programs must communicate these messages.

The Need for Policy

Canadians generally have a clear image of either a particular national park or a national icon such as Banff National Park. There is, however, no clear image of national parks as a system, of Parks Canada as an organization, or of managing for the protection of ecological integrity as the first priority of national parks. Parks are seen as discrete entities — isolated islands with no connection to their regional or national contexts. Because of a lack of communications on the subject, there is an absence of public awareness of the fragile nature of national parks, including awareness of threats from inside and outside of park boundaries. The current major focus of public interest — and interpretation messages — lies in appreciation of park scenery and recreation opportunities, not in ecological integrity.



In February 1998, the Parks Canada Executive Board approved the following Statement of Purpose for Interpretation and Outreach:

As many Canadian citizens and visitors as possible will be touched by meaningful, captivating and enjoyable interpretation and outreach experiences so that these audiences will appreciate, understand and support:

- Canada's system of nationally significant heritage places;
- the essence of each heritage place and how it is significant to the country and relevant to individuals; and
- the need to protect heritage resources.

Parks Canada, "The role of heritage presentation in achieving ecological integrity" (1998) p.1

There is no mention of ecological integrity in the Statement.

Parks Canada is currently developing an "Action Plan for the Renewal of Heritage Presentation in Parks Canada." The draft version of the action plan does not have ecological integrity at its core; in fact, the term "ecological integrity" is used only once in the draft document, in a box labelled "Protection of Resources." (Parks Canada, 1999, p. 10).

The communications message should be clear: protection of ecological integrity is the primary consideration in achieving the management of national parks, period.

RECOMMENDATION

10-1. We recommend that Parks Canada add ecological integrity to the "Statement of Purpose for Interpretation and Outreach" as the core purpose of interpretation and outreach. In order to formally entrench the importance

of ecological integrity in interpretation, this Statement should be backed by a clear policy that all national, regional, and individual park publications, interpretation programs and facilities reflect the ecological integrity obligation.

Cascade Gardens in Banff National Park contain many alien plant species but to most park visitors these formal gardens are not inappropriate
Blackbird Design



The Need for Strategy

On a conceptual level, the way interpretation is presented tends to externalize the concept of nature and the understanding of natural systems. It implies that people are observers of the natural environment, but not part of it. On a practical level, the protection of ecological integrity must be relevant to, and directly involve, the visitor's experience of the park. For this to be achieved, there is a need to internalize nature. This means that interpretation of natural systems and ecological integrity must begin by helping people understand that they are part of the processes that sustain life. Interpretation messages that focus on sustain-



able infrastructure facilities, such as tertiary sewage treatment, composting programs and so on, would provide a sound basis for linking people with these natural processes.

From this first message, interpretation of ecological integrity can logically continue with the message that the same evolutionary and ecological processes also sustain the park — its geology and geomorphology, natural water systems, soils, plants, and animals, unique natural and cultural regional settings, wonderful scenery, and the special qualities of wild areas. The key to effectively delivering ecological integrity messages is to "bring the message home" and make ecological integrity something that everyone can understand. Identifying appropriate target audiences and their information needs is central to accomplishing the effective targeting of interpretation messages.

An Evaluation of Current Interpretation

Many past studies have shown that visitors and other audiences are satisfied with interpretation programs and communications messages. However, there is a lack of research on visitors' and non-visitors' existing level of knowledge about national parks. Another unknown concerns the effectiveness of current interpretation communication media, programs, or facilities, especially regarding ecological integrity. For example, an aesthetically-pleasing film or television program may be entertaining, but it might have little effect on increasing a viewer's knowledge of ecological integrity or changing that viewer's behaviour in support of ecological integrity.

Some parks already promote a strong ecological integrity message. For example, a brochure from St. Lawrence Islands National Park (Parks Canada, 1998) includes information on such topics as the Park Conservation Plan, the park and regional ecosystems, specific plants and animals, geographic information systems, the Committee on the Status of Wildlife in Canada, and national park zoning.

Many interpretation programs include media and facilities that are out-dated in terms of content and style. Renewal and updating of exhibits and facilities has suffered from a lack of funding. Improving physical assets, such as museums and displays, needs to be balanced against increasing the number of interpretation staff. Staff have a big advantage over centres or displays — staff can move through the park and interact with visitors in campgrounds, on trails, and through outdoor experiences and learning.

On the other hand, physical assets are used by only one audience — visitors — and only a small proportion of that audience actually uses interpretation programs in national parks. Perhaps as a consequence of reduced funding, outdated materials, degraded physical assets and insufficient levels of staffing, visitor involvement in interpretation activities is often very low. For example, only two to three per cent of the annual 350,000 visitors to Riding Mountain National Park take part in such activities, a proportion that could also be applied to most other parks. Repeat visitors have "been there, done that," so they do not return to a park museum or interpretation centre to view the same displays.

Another factor that could be related to low levels of involvement is that many interpretation programs (guided events, evening programs, and most school programs) are offered on a cost-recovery basis. Cost-recovery presents





Park buildings in Fundy National Park are surrounded by acres of lawn, increasing the ecological footprint and sending the wrong ecological message to park visitors
P. Wilkinson

barriers to the delivery of messages in general and ecological integrity messages in particular. A portion of the potential audience will not attend because they are unwilling or unable to pay. Eventually, only those programs and related messages which have a high draw — and, therefore, high cost-recovery — are offered. Essential interpretation information must be available to all park visitors at no additional charge (excluding park entrance fees).

Ecological Integrity: Walking the Talk

Interpretation centres perform important functions in providing a focus for information and literature on ecological integrity. They are less effective, however, in providing visitors with an outdoor, hands-on experience and knowledge of natural history and ecological processes. The Panel observed that many interpretation centres contain static displays, including stuffed animals, that are out-

dated and/or inappropriate to conveying the ecological integrity message.

Interpretation, to be effective, needs to be focused on the outdoors — the direct experience of the park environment. For example, restoration plots, ecosystem experiments, and prescribed burns can be used as means of communicating with local stakeholders and park visitors.

There is a danger that park residents may resent messages that present the reality of critical issues, particularly if these messages are perceived as harming the local tourism sector. Parks should not shy away from such potential conflicts, but instead work with local residents and explain why it is important to educate people about the realities of ecological integrity.

There are also significant opportunities for national parks' interpretation programming to reinforce the message of ecological integrity by linking it with the ecological sustainability of park infrastructure and facilities. Messages can be delivered in a number of subtle, indirect ways. Ecological Integrity not must only be done, it must be seen to be done. Parks must walk the talk in delivering environmental messages.

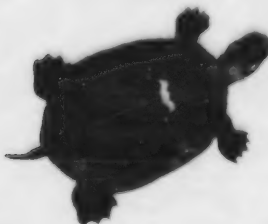
In many cases, park visitors currently receive conflicting ecological messages. For example, visitors may be confronted with:

- manicured lawns and exotic species in gardens around buildings, picnic sites, and campgrounds;
- facilities such as swimming pools, ski resorts, golf courses, and tennis courts;
- roads and parking lots whose design is no different from those outside the parks;
- inefficient or outdated sewage treatment facilities that may be degrading waterways and lakes.

The Benefits of On-site Teaching

Direct experience of place is one important way of delivering interpretation messages.

The Communications Manager at Wood Buffalo National Park took members of the Panel to the mouth of a small stream where a delta is developing. He regularly takes groups of school children to that location, to explain river delta processes and how deltas are formed. He has found it extremely difficult to get children to understand these dynamic hydrological processes in a classroom setting, but when these processes are interpreted on site, the children have no problem in understanding. In his view, the only way to give them a meaningful explanation is to take them to experience the stream itself and show them delta-forming processes in action.



Collectively, these elements of park infrastructure are at odds with the fundamental principles of sustainability and ecological integrity. Thus, there is a lack of consistency between Parks Canada's primary goal and the reality of the visitor's experience of the park. Conflicting messages support the supposed dual mandate, an historical holdover that persists and continues to interfere with management for and protection of ecological integrity and the associated interpretation messages.

The resolution of conflicting park messages is vital to increasing visitor awareness of ecological integrity. National parks must follow their own messages by making environmentally responsible choices in all aspects of park planning,

management and maintenance. That parks are special and different must be evident, right down to park facilities and infrastructure. Actions that support environmental stewardship send strong messages to all audiences, especially park visitors and residents. Such measures as adopting environmental management systems, upgrading sewage treatment and other infrastructures, and establishing functional recycling programs all serve to consolidate the ecological integrity message and to realize the potential for national parks to truly protect ecological integrity.

Chapter 12 contains further discussion on the links between ecological integrity, park infrastructure, and interpretation messages.

RECOMMENDATIONS

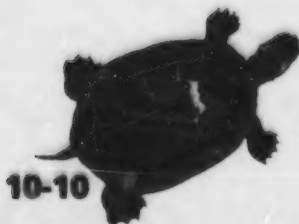
10-2. For each park, we recommend that Parks Canada develop an ecological integrity interpretation and outreach strategy that confirms ecological integrity as the prime objective, presents clear and consistent messages about ecological integrity, balances plans for both interpretation and outreach, and has measurable goals and objectives that can be evaluated on a regular basis (for example, in Implementation Plans or State of the Park Reports).

This strategy requires the following elements:

- programs that reflect a focus on ecological sustainability in each park, including messages about the design or retrofitting of infrastructure facilities to reflect Parks Canada's commitment to ecological integrity;
- a content analysis of each park's interpretation program (including museum displays, information signs, brochures, presentations) to measure the degree to which ecological integrity is being communicated;

- research on the reasons for low visitor involvement in interpretation activities and subsequent actions to increase involvement;
- interpretation programs with a focus on outdoor experiences and learning;
- integration of natural history education and broader information on the whole national park system, present and future challenges and opportunities, dissemination of literature, the results of scientific research in both natural and social sciences, and visitor research information;
- programs that include messages that accurately discuss human/animal conflicts, visitor use patterns, and the implications for ecological integrity.

10-3. We recommend that Parks Canada make essential interpretation information available to all park visitors at no charge (excluding park entrance fees).



Current and Potential Audiences

Park visitors have traditionally been the focus of interpretation programs, from bear safety to ecosystem dynamics. Park visitors may range from one-time visitors, from outside the park's region or outside Canada, to visitors who live near the park and visit frequently. These two sub-groups have different patterns of use within the park and have different information and education needs, but Parks Canada's interpretation programs currently make no distinction between them. There are also limitations in the ability of visitor-oriented park interpretation programs to achieve lasting awareness and commitment to ecological integrity, because visits to national parks are generally sporadic and short in duration.

Many people just want to learn about parks and do not necessarily intend to visit. In the past, most of the information available to these people was in the form of traditional media, such as television programs and large-format picture books or through education materials aimed at teachers. More recently, individual parks have used a wider variety of media to serve the non-visitor audience; some parks produce newsletters, and Parks Canada currently maintains a Web site with information on all national parks. Information about a park may also be disseminated via news releases, media events or interviews with park managers or staff.

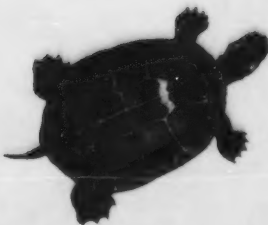
Given the ecological integrity objective, the complexity of the concept, and the need to educate people about ecological integrity, Parks Canada must reinforce and broaden its interpretation and outreach efforts beyond the traditional focus on park visitors. There are now many communication methods available, and numerous potential audiences for the ecological integrity

message, each with specific needs. These potential audiences include the following categories.

People planning to visit a national park. Interpretation should be aimed at park visitors prior to their visit. Interpretation messages delivered once the visitor has arrived in the park may be too late to explain ecological integrity to uninitiated visitors, or to change their behaviour. The message needs to be taken to visitors in the planning phase of their trip and even during their journey to the park through such means as Web site information, publications, video and audio tapes.

Park community residents. Several national parks contain park communities. While there are examples of park community residents who are involved in advisory committees, round tables or planning exercises, interpretation programs rarely focus on communicating ecological integrity issues to this group. Residents have a personal stake in the park and also have effects on and are affected by the ecological integrity of the park.

Parks Canada staff. Many Parks Canada staff have unclear or even incorrect ideas about ecological integrity or believe that their jobs have no relationship to ecological integrity. Geographically-remote locations and separate work sites often lead to a lack of formal communication, although such means as the communication working group, section meetings and management team meetings currently address this problem somewhat. Parks Canada staff should be the targets of educational and training programs about ecological integrity (see recommendations in Chapter 2).



Current Examples of Interpretation Involving Scientists and Researchers

- The semi-annual publication "Gwaii Haanas Currents: Sharing Scientific and Traditional Knowledge for Protected Heritage Areas Management"
 - Annual science reporting at Grasslands National Park
 - The use of scientists in interpretation programs in Fundy National Park
-

Parks Canada now recognizes the continued need for the individual national parks and national historic sites to communicate at the local level while focusing on the establishment of a strong image of a national system encompassing the whole country — an image that is understood and valued by all of its varied clients, whether they are schoolchildren researching local history or Canadians travelling to remote corners of this country.

Parks Canada, State of the Parks 1997 Report, p. 93

Politicians, other federal government units, and other levels of government. People in government generally have a poor understanding of Parks Canada's ecological integrity mandate. However, members of this group may make decisions that could seriously affect the ecological integrity of national parks — for example, the location of transportation or utility corridors, changes in land use, resource extraction, pollution control. These key stakeholders need to be targeted by outreach programs on ecological integrity. This is especially true where parks staff are attempting to advocate for national parks interests and values beyond park boundaries, as we recommend in Chapter 9.

Scientists and researchers. These groups are simultaneously target audiences for interpretation and sources of interpretation information. Communicating the results of scientific research conducted by Parks Canada, university personnel, and others is a means of helping various

audiences to understand and embrace ecological integrity. There are many excellent existing interpretation efforts in this regard. Potential channels for presenting research, planning, management, monitoring, and inventory activities include open houses, press releases and media events, newsletters, and Internet sites.

Regional communities. Approximately 70 per cent of current park visitors are from surrounding regions, although in some parks, regional visitation is much higher — for instance, over 90 per cent of visitors to Bruce Peninsula National Park are regional. The need to integrate parks into their surrounding regions means that regional communities are an important audience. This group includes school systems, environmental non-governmental organizations, corporations, farmers, regional land managers, Aboriginal peoples, and many others. Effective communication with these audiences implies partnering, a topic discussed below under "The Importance of Partners in Interpretation."

Aboriginal peoples. There is a very mixed pattern of linking Aboriginal peoples and their traditional ecosystem knowledge into interpretation programs and facilities. As a sign of respect, each park should communicate about the traditional territory in which the park is located and involve Aboriginal peoples in interpretation programs relating to a variety of topics. For example, there could be programs about the close links between humans and the land, or about traditional naming and mapping. This topic is discussed further in Chapter 7.

Not only are Aboriginal peoples a new audience for interpretation messages, they are also a source of knowledge and understanding that needs to become part of Parks Canada's interpretation and outreach programs. Building trust and support among Canadians for the re-integration of Aboriginal activities in national parks can be greatly aided through interpretation. Aboriginal peoples themselves are the obvious choice for developing and delivering these programs.



Young people and teachers. As the generation whose support will be essential for maintaining the ecological integrity of Canada's national parks, young people — and their teachers

— should be a particular focus for interpretation concerning ecological integrity. Parks Canada should support educators by providing information on specific topics. Although Parks Canada has developed "Edukits" on particular topics, the Panel was frequently told that most teachers do not have time to incorporate these topics unless they are part of the formal curriculum. An exciting and innovative link between Parks Canada and a school system is the recent decision by the government of Ontario to include Canada's national parks as a major focus of the Grade 9 geography curriculum. We were told that this new curriculum has resulted in a major increase in the use of Parks Canada's Web site by Ontario schools and individual students.

Businesses, corporations and industry associations. The private sector is an important target audience for outreach programs. Whether individual businesses or industry associations, the private sector makes many decisions and takes many actions both within and outside of national parks that affect the ecological integrity of national parks. In many cases, the private sector is very knowledgeable about ecological integrity, often through research.

As noted in Chapter 9, there is great potential here for partnerships with Parks Canada, partnerships that could have potentially important inputs into interpretation and outreach programs. In addition, this knowledgeable element of the private sector could work in co-operation with Parks Canada to inform and educate other businesses. The aims of Parks Canada outreach to this audience should be to inform and to encourage decisions and actions that are beneficial to ecological integrity both within and outside of national parks.

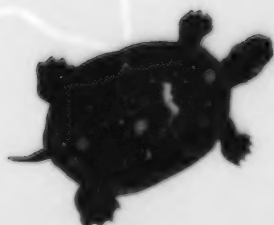
Urban residents. Urban regions include many potential audiences and are the source of much support for national parks. In spite of the significant effort spent in developing interpretation programs within national parks, Parks Canada faces a serious challenge in that few national parks are located near urban areas — where the majority of Canadians live. For lasting educational value, interpretation messages need to be close to home where awareness of natural processes can become a daily experience, reinforcing the links between national parks and the urban culture of cities. Support for an urban Parks Canada presence will lie in strong citizen environmental organizations and an activist population with sound knowledge of environmental issues and commitments to the ideals of protected areas.

Incorporating Naturalized Knowledge in Interpretation

An Ojibway Elder of the Pic River First Nation leads an interpretation program on trapping at Pukaskwa National Park. Two years after Pukaskwa was created in 1978, the Elder joined the park staff as one of a dozen or more Aboriginal employees. In 1998, he was invited to join Pukaskwa's First Nations Interpretation Program, one of the main purposes of which is to demonstrate to visitors that Anishnabe culture is alive, not static.

Like all true teachers, this Elder is most effective when he teaches by example. He sometimes muses on relations between the Anishnabe and a world that has too often misunderstood their way of life: "People of different cultures have always had different ways of doing things," he says quietly (he says everything quietly). "What you have to realize is that at heart we're not different, we're the same. The message I try to get across in the park is that we're one big family doing the best we can to survive, and that we have to work together. I can't tell anybody anything. To learn from me or from anyone else, people have to want to know, to watch, to listen."

from Panel Newsletter Volume I, Number 4
(September 1999)



Collaborative ventures with municipal parks departments should be instituted with technical and financial support from Parks Canada. Programs might include:

- interpretation of natural processes operating in different urban park settings;
- human use and impact within and surrounding urban parks;
- the history and role of Aboriginal peoples;
- issues of protection and management;
- cultural issues and associated arts and crafts;
- the natural regions in which the cities are located and on which the national parks system is based.

In addition, new Canadians, who represent a significant portion of the urban population, should be informed about the need to protect the natural and cultural heritage of Canada. Parks Canada should place special emphasis on reaching multi-cultural groups that have little understanding of park protection or traditions of park use.

Can Parks Canada Serve Its Target Audiences?

The simple answer is "no."

Recent re-organization and budget cuts have led to a serious decrease in resources, both personnel and funding,

related to interpretation. Many interpretation programs and facilities are out-of-date and require re-capitalization. Many interpretation staff have either term or seasonal positions, a situation that fails to recognize the professional skills and expertise required for effective interpretation programs and fails to provide the scope for a year-round interpretation program to communicate ecological integrity on a regional basis.

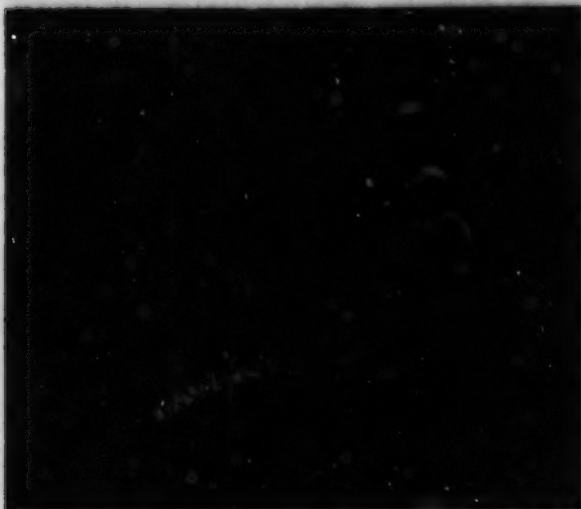
Many experienced staff have left Parks Canada or have been re-assigned. Communicating about ecological integrity requires a high level of corporate knowledge and memory about individual parks and the parks system as a whole. That knowledge and memory have been seriously eroded by employment reduction programs and are also threatened by the aging of Parks Canada staff (a high proportion of Parks Canada staff are approaching retirement age). Ecological integrity itself, and communicating about it, requires maintenance and improvement of that corporate knowledge; an active succession planning program is imperative. There is a danger that a fine tradition of interpretation has been lost. The situation is such that Parks Canada must now re-invent interpretation.

We were told that in 1998-99, a total of \$34.26 million was spent on "presentation of heritage resources awareness and understanding," which is 9.4 per cent of a total Parks Canada Agency budget of \$364.98 million (Table 13.2). We have not, however, been able to obtain historical data (funding and personnel levels prior to budget cuts) or data for individual parks. Thus it is

Stuffed wildlife display in a park interpretation centre may be outdated and send inappropriate messages to park visitors

P. Wilkinson



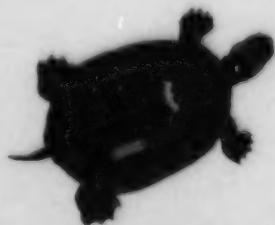


Helping urban residents understand the need for prescribed burns in urban parks can increase awareness and acceptance for similar active management in national parks
G. Dillon/City of Toronto Parks

Urban Interpretation Programs

Urban parks across Canada face a wide range of conservation issues. These issues provide opportunities for interpreting natural processes locally, regional, and Canada-wide. A few of these are:

- the Coastal British Columbia Field Unit of Parks Canada is developing an Urban Outreach Strategy, the intent of which is to reach urban adult audiences with critical Parks Canada messages. This program will be located in the Vancouver Aquarium in Stanley Park; audiences in Victoria and Vancouver will be targeted for the first phase of this initiative.
- a proposed pilot project to reach urban youth in the Vancouver school system is also underway. It will link Parks Canada's existing Web site with a "Kids Kare" Web site that contains interactive components to educate students on national parks, national historic sites, and marine conservation areas, initially within British Columbia and eventually all across Canada.
- the Minister of Canadian Heritage recently announced a joint interpretation program for the Rouge Park, part of the Toronto region's protected valley and ravine system, operated by the Toronto and Region Conservation Authority. This is an interconnected system of valleys and wild areas that retains plant and animal species not usually seen in urban areas. It provides great potential for interpreting the implications of human impacts on a natural system that still retains a high level of ecological integrity.
- Calgary's Nose Hill Park offers potential for interpreting protection and management of short grass prairie ecosystems in relation to urban users. Prescribed burns would provide opportunities for interpretation of prairie ecosystems in this region.
- restoration of black oak savanna with experimental prescribed burn management and removal of exotic and invasive vegetation has been underway since 1993 in High Park, Toronto's largest park. A major burn is proposed for the year 2000. The surrounding community has now accepted this process of vegetation management within the urban area.
- Tommy Thompson Park (also known as the Leslie Street Spit) on the Toronto waterfront, one of the most ecologically diverse urban habitats in Canada, provides potential for interpreting natural and biophysical regenerative processes and protection planning and policies in the field.



not possible for the Panel to provide detailed recommendations on required increases in funding and personnel for interpretation as we have done for science capacity. Chapter 13 provides an estimate of the increased interpretation capacity required to serve Parks Canada's current and potential audiences.

Employing Other Forms of Communication

The Internet is a communication medium that can provide ecological information to many potential audiences. For example, Wapusk National Park's Web site contains information on the realities of the park's environment, including the rigorous climate and the danger of polar bears, and relates these realities to appropriate visitor use. The

level of Web site development and the quality and quantity of information presented is highly variable among parks and is dependent on the personal interest of individual park staff. Moreover, insufficient translation capacity may present a barrier to greater use of the Internet because of the federal government requirement that all information be provided in both French and English.

Information with a strong ecological integrity focus could be provided via maps, audio tapes, CD-ROMs, video tapes and a host of other media. Individual parks have made some use of these media but overall use of these means for communicating national parks interpretation information is uneven.

RECOMMENDATION

10-4. We recommend that Parks Canada expand national parks interpretation programs to reinforce efforts aimed at traditional target audiences and to include new strategic target audiences and media. Support strong interpretation programs in terms of personnel, budget, and training. Acknowledge and support the professional status of those who work in interpretation through a national training program focusing on ecological integrity, funding for research and development of presentation programs, and a process for career advancement. Provide funds for interpretation and outreach programs for research, staff, and renewal of these programs to meet interpretation objectives. (Chapter 13.)

This would entail:

- working in collaboration with tourist operators and other visitor service providers to provide pre-trip information with a strong ecological integrity focus via the Web, maps, audio-tapes, CD-ROMs, video-tapes, and other media;

- in each park that contains one or more park communities, developing an interpretation program that is aimed explicitly at park community residents and their special relationship to ecological integrity. The linkages between interpretation and park residents should focus on environmental stewardship and working toward developing environmentally-friendly communities;
- promoting ecological integrity as the concern of all Parks Canada staff. Ensure that all staff are involved, empowered, and trained regarding communicating goals, objectives and messages, particularly as they apply to ecological integrity. Communicate the ecological integrity mandate more effectively within Parks Canada as a whole and especially at the individual park level;



- developing an education program on ecological integrity, aimed at politicians and other decision-makers in the federal government and other levels of government;
- developing interpretation and outreach programs specifically aimed at audiences in the regions surrounding national parks, including school systems, corporations, local governments, regional residents and others;
- making integration of Aboriginal history, culture, and relationship to the land a major priority in interpretation programs. Work with Aboriginal communities to allow Aboriginal peoples to tell their own stories and to build understanding and trust concerning traditional Aboriginal activities in national parks;
- focusing interpretation concerning ecological integrity on young people and educators, particularly through the formal curriculum;
- setting up programs and activities to bring national parks and their ecological integrity issues to major Canadian cities, particularly through collaboration with municipal parks departments;
- developing interpretation and outreach programs specifically tailored to businesses, corporations and industry associations (such as the Canadian Pulp and Paper Association, the Canadian Association of Petroleum Producers or the Canadian Tourism Commission) to communicate the need to protect ecological integrity in national parks through sustainable activities outside of national parks;
- providing funding for research and development of the Internet and other media.

The Importance of Partners in Interpretation

Audiences within the regions surrounding national parks provide great potential for supporting the ecological integrity mandate of national parks through such means as political action and the advocacy efforts of environmental non-government organizations. Regional audiences can also become partners in interpretation. For example, the Panel met with several ranchers from around Waterton Lakes National Park who told us much about ranching, maintaining conservation values, and other aspects of their ranching operations that support ecological integrity. Parks can also extend their programs in the form of advocacy on regional, national and even international issues relating to ecosystem management and ecological integrity protection (Chapter 9).

This is a two-way street. Ecological integrity messages could be greatly strengthened by communicating the economic and cultural benefits and values that parks bring to local communities and to the country as a whole. The value of parks is often not appreciated by neighbouring and regional private landowners, partly because of the lack of knowledge of issues related to national parks and their connections to regional issues.



Collaboration is the key to promoting ecological integrity. Parks Canada must work with a variety of partners, such as Aboriginal peoples, other governments (including local municipal councils and parks departments, provincial and territorial governments), media, environmental organizations, the private sector, co-operating associations and volunteers.

In particular, volunteers have an important role in interpretation. For example, the Canadian Parks Partnership has over 60 member associations, including over 40 co-operative "Friends" associations working in partnership with national parks and national historic sites. These associations provide over 100,000 volunteer hours each year. Offering programming, services, publications, and products, their interpretation efforts are particularly focused on children.

RECOMMENDATIONS

10-5. We recommend that Parks Canada include the regional dimension in interpretation programs in order to place ecological integrity messages into regional, national, and global contexts. Make each park the regional focal point for public education programs in protected areas networks and ecosystem management.

This would entail:

- increasing interpretation efforts to educate community and regional stakeholders on Parks Canada's ecological integrity mandate and on the specific ecological integrity objectives of each park;
- targeting these efforts in support of regional integration;

- changing the thinking that it is only Parks Canada's job to protect ecological integrity to a view that it is everyone's job;
- discussing broader environmental themes (such as global climate change) that are threats to ecological integrity and link these themes to national parks;
- reinforcing interpretation in the field by reinstating interpretation staff.

10-6. We recommend that Parks Canada increase and support the role of partners, particularly volunteer associations, in interpretation and outreach as an enhancement to, but not replacement of, the work of core professional full-time staff.



Marketing and Ecological Integrity

Tourists — both domestic and foreign — have traditionally been a major audience for information on Canadian national parks, notably in the form of product marketing. That is, national parks are being “product marketed” by Parks Canada and other tourism organizations as tourism destinations.

Government organizations conduct four major types of marketing:

- Type A: Marketing of products and services (parks as tourist destinations).
- Type B: Social marketing (marketing that attempts to change the behaviours and attitudes of target groups).
- Type C: Policy marketing (to convince specific sectors of society to accept a policy, similar to “advocacy advertising” by private companies to trumpet their virtues as good corporate citizens).
- Type D: De-marketing or Don’t-use-our-programs marketing (to advise and/or persuade targeted groups not to use government programs that have been available to them in the past).

Madill (1999)

To date, Parks Canada’s marketing staff have been engaged in only the first type — marketing products and services. This product marketing demonstrates little or no regard to the fact that most national parks report serious stress from even current levels of visitor use. It also demonstrates little to no concern for the implications of increased human use on ecological integrity and, despite claims to the contrary, sends virtually no ecological integrity messages. The Panel is of the opinion that neither product marketing nor its potential impacts on the ecological integrity of national parks are based on solid research and data. The Canadian Tourism Commission told the Panel that ecological

integrity should be the first priority of Parks Canada and that the marketing of national parks should have ecological integrity as the primary message.

The Panel was told, “We should not under-use our national parks.” We were also told that one objective of product marketing is to divert demand to “under-used” parks and to shoulder seasons in parks that are currently “over-used” in high season.

The notion of under-use is meaningless in ecological integrity terms. This labelling of parks as “under-used” is based solely on un-used facility capacity and similar economic motivations, without any scientific understanding of the relationships between use and ecological integrity. However, sensitive natural processes such as breeding and migration do occur in shoulder seasons and park staffing levels are lowest in shoulder seasons, thus making management for ecological integrity even more difficult at these times. The concept of marketing a shoulder season may be applicable to selling airplane seats to sun destinations in the summer, but it is not appropriate to national parks and the protection of ecological integrity.

The Panel was also told that Parks Canada’s External Relations Branch has a “client information base” of approximately 4500 documents that provide the basis for understanding, in the Branch’s words, “spatial and temporal over-use of parks.” In the Panel’s view, this understanding does not exist. The current product marketing of national parks is not based on solid social or natural science research, nor does an adequate database exist.

... a marketing approach may be more valuable for other goals (than revenue generation) of a unit such as improving relationships with groups and individuals with whom the unit interacts, serving clients better, encouraging healthier lifestyles and/or behaviours, etc.

Many in government identify marketing with cost recovery or revenue generation. It should be noted that there is nothing inherent in the philosophy, tools or techniques to force the role of marketing into either of these camps. It is true that marketing can assist in generating revenue within government, but it can also be a useful paradigm for improving relationships with clients and the public with whom government departments deal. The marketing approach does not necessarily assume a revenue-generation or profit motive.

Madill (1999)



Individuals involved in the product marketing of national parks appear to have little knowledge about ecological integrity and little appreciation of the ecological integrity mandate. As a result, there is an almost total absence of information about ecological integrity in marketing materials, which rarely use the phrase "ecological integrity" and never mention the primacy of ecological integrity in the management of national parks. The Panel learned that many marketing materials are out-of-date and were created when there was less emphasis on ecological integrity. We were told that these materials would be replaced with new material emphasizing ecological integrity — when current material supplies run out. However, we also saw very recent material that was still devoid of ecological integrity content, such as the "Guide's Guides," and materials being prepared for long-haul markets by Parks Canada's External Relations Branch.

The current marketing target of Parks Canada's External Relations Branch is the long-haul tourist, notably foreign tourists such as Europeans and Asians. The argument for such a focus is economic, based on two facts: foreign tourist expenditures improve Canada's balance of payments and foreign tourists have higher per capita expenditures per visit than domestic visitors to parks.

This product marketing strategy bears little concern for ecological integrity. As clearly reported in the State of the Parks 1997 Report, most parks report stress from current levels of visitor use, yet new marketing materials for foreign markets contain no ecological

integrity message and are aimed at increasing the number of visitors.

Social marketing teaches people about the benefits and stresses of national parks, and lets people decide whether or not to visit. There are many other ways that people can learn about national parks other than by visiting them, including increased use of the Internet and through urban outreach programs.

People learn about national parks and national historic sites in many different ways, through many different media. Fortunately, visiting them is no longer the only way to experience their sights and sounds. The advent of new technologies — including the Internet, CD-ROMs, and videos — coupled with traditional means of communicating with Canadians including school visits by Parks Canada staff, television specials and films, has opened horizons for reaching out to Canadians of all ages and in all walks of life, across the country.

Parks Canada, State of the Parks 1997 Report, p. 95

We are firm in arguing that product marketing of national parks should end and that the focus be placed on social marketing, policy marketing, and even de-marketing of the parks, with a focus on ecological integrity. Ecological integrity is the primary objective — therefore, market ecological integrity, including telling people that the ecological integrity of national parks is under stress and that part of that stress comes from too many people visiting the parks and from activities that are neither allowable nor appropriate. (See Chapter 11 on the issue of appropriate use.) This point is part of Parks Canada's Corporate Image and External Relations Strategy, although use seems still to be the ultimate goal:



This document ... recommends telling Canadians about Parks Canada's mission and mandate, reinforcing the pride and identity these special heritage places evoke. It addresses specific target markets with messages which will help them to understand, to support, to become partners in the cause, and to visit parks and sites.

Marketing can help the organization achieve its corporate goals, improve its corporate image, and enhance internal co-operation and effectiveness.

Parks Canada
"Executive summary: Parks Canada's
Corporate Image and External Relations
Management Strategy" (1997) p. 1

The Panel found no evidence that such an alternative approach to marketing is even being contemplated.

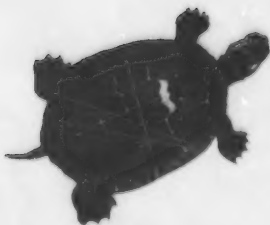
Some national parks actively work with regional or provincial bodies involved in tourism product marketing. With or without the involvement of Parks Canada or individual parks, these bodies are likely to continue to product market parks with the understandable goal of increasing regional or provincial revenues. Parks Canada should work with such bodies to educate them about the stresses on ecological integrity caused by current or increased levels of use and to encourage them to incorporate appropriate ecological integrity messages in their marketing programs. Otherwise, the deteriorating ecological integrity of national parks will make parks less attractive to visitors, thus harming regional and provincial economies.

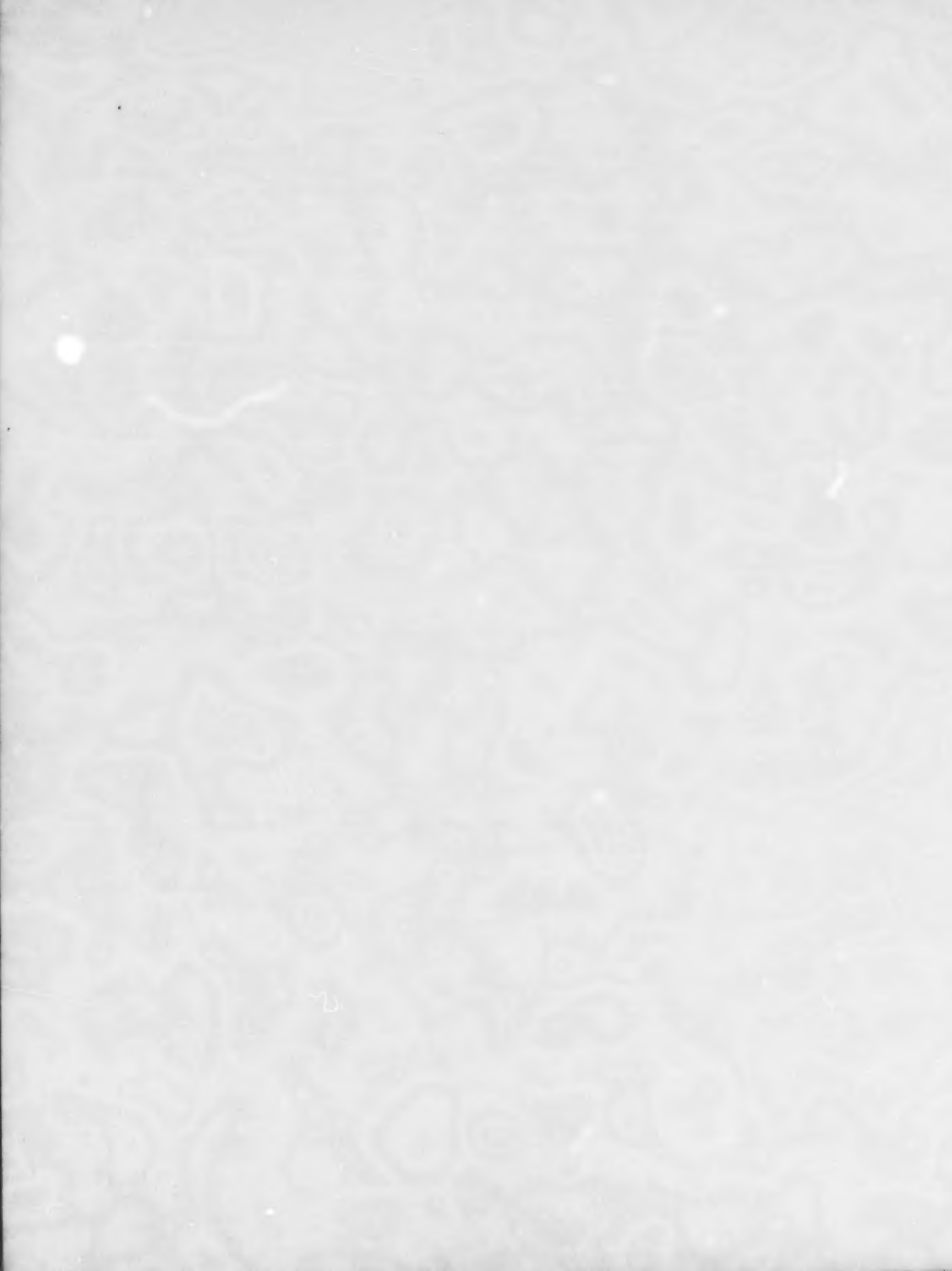
The Panel also heard park visitors referred to as "clients." The term is appropriate to a business where a primary goal is matching supply and demand; it is inappropriate to national parks. The term sends the wrong ecological integrity message. Visitors are guests who have a responsibility to behave responsibly in ways that are appropriate to the context of their host park.

RECOMMENDATIONS

10-7. We recommend that Parks Canada immediately cease the product marketing of national parks in general and the product marketing which attempts to increase overall use of parks or divert demand to shoulder seasons or so-called "under-used" parks in particular. Concentrate instead on social marketing, policy marketing, and demarketing aimed at appropriate target audiences with messages focusing on ecological integrity.

10-8. We recommend that Parks Canada work with regional and provincial bodies involved in tourism product marketing to educate them about the stresses on ecological integrity caused by current or increased levels of use and to encourage them to incorporate appropriate ecological integrity messages in their marketing programs.





Opportunities will be provided to visitors that enhance public understanding, appreciation, enjoyment and protection of the national heritage and which are appropriate to the purpose of each park and historic site. Essential and basic services are provided while maintaining ecological and commemorative integrity and recognising the effects of incremental and cumulative impacts.

- Public opportunities are provided for in ways which contribute to heritage protection and national identity objectives, and which build public support for, and awareness of, Canadian heritage.

- Parks Canada recognizes the need for control and management of appropriate activities. Public demand alone is not sufficient justification for provision for facilities and services in support of appropriate activities.

- Services, facilities and access for the public must directly complement the opportunities provided, be considered essential, take account of limits to growth, and not compromise ecological and commemorative integrity nor the quality of experiences.

Human activities within a national park that threaten the integrity of park ecosystems will not be permitted.

Parks Canada, Guiding
Principles and Operational
Policies, 1990



CHAPTER 11: ENJOYMENT AND APPROPRIATE USE

Use without abuse. How can it be attained?

James B. Harkin
Commissioner, Dominion Parks Branch (c. 1920)

National parks were created for the "benefit, education and enjoyment" of the people of Canada. Parks have been, are, and will continue to be places for people to visit and re-create themselves. The modern challenge, brought on by growing numbers of increasingly mobile park users and by the expanding diversity of recreational activities, is to manage human use so that it does not affect the primary vocation of the parks, "to be kept unimpaired for the enjoyment of future generations." This is the challenge this chapter attempts to face.

Use and enjoyment have been among the historical goals for Canada's national parks, and will continue to

be major elements of the Canadian character and heritage.

In order to protect ecological integrity, human use in national parks must be based on the principle of responsible experience: use without abuse. Human use must also pass the dual tests of allowability and appropriateness.

The Panel is concerned that these tests are currently not clearly defined and thus policies of use are inconsistent and uncertain. Parks Canada must develop a formal assessment program on both allowable and appropriate activities, and clearly define the term "basic and essential services" so that strong and consistent decisions can be made at the park level.

Use Within Limits

Human use is one value of Canada's national parks and has a strong historical connection. The National Parks Act of 1930 recognized this with the words "*dedicated to the people of Canada for their benefit, education and enjoyment.*" Because of the modern threats to ecological integrity, the goal now

is for people to directly enjoy protected nature responsibly, or indirectly via media such as the Internet, film, television, or printed material.

While there is now greater understanding of the interactive effects between use and retaining ecosystems in an unimpaired condition, the subtle distinctions involving use and enjoyment are less clear, particularly in terms of their compatibility with ecological integrity. For example, ski develop-

ments in parks can affect wildlife movement; accommodations can cause water pollution through sewage.

Parks Canada needs a systematic screening mechanism to determine allowable activities within national parks. Beyond the need for a definitive list of allowable activities, we argue that the precautionary principle should be the guiding rule in determining whether a particular type or level of activity is appropriate in a specific national park.

Park visitors have a responsibility for the maintenance of ecological integrity. Not all uses, seasons of use, or levels of use are appropriate. The term "enjoyment" in the Act does not mean that people have the right to use parks in ways or levels of use that have negative impacts on ecological integrity and hence on the experience of future generations. National parks are of such

importance to Canada that visitors need to approach these sacred places with a sense of humility, respect, and re-connection.

Stress from Visitor Use

Ecological integrity is affected not just by the impacts of particular activities or particular levels of use, but also by the attitudes, values, beliefs, and behaviours of park visitors, regional communities, businesses, governments and park partners. As detailed in Chapter 10, interpretation and outreach play a critical role in educating target audiences about ecological integrity and shaping their attitudes, values, beliefs, and behaviours both within and outside of national parks.

Most national parks report stress from visitor use. Based on the 1996 Stress Survey Questionnaire completed by all national parks, "*Tourism and visitor facilities were ... reported to be causing significant impacts [in] 26 parks*" (State of the Parks 1997 Report). All forms of recreation in a park affect ecological integrity, ranging from minor stresses such as vegetation trampling to major stresses such as the disruption of carnivore migration patterns.

There is a widespread misconception that the majority of visitor use occurs in such small areas that there is no significant stress placed on ecosystems. In some parks, only a small overall proportion of parks is devoted to visitor facilities (especially day-use facilities) but this type of use often occurs in key or critical habitat, involves unmanageable numbers of users, and provides a negative learning ground for how to experience protected nature in a national park. Day use may be the single biggest internal and unmanaged threat to ecological integrity in national parks.

Conflicting Messages on Visitor Use

It would be ideal if all Canadians were able to visit national parks and national historic sites.

Parks Canada, State of the Parks 1997 Report, p. 95

Increasing visitor traffic in national parks could compromise ecological integrity.

Auditor General (1996) p. 31-11

All recreational and harvesting activities are conditional on protecting the ecosystem.

Parks Canada, State of the Parks 1997 Report, p. 32





Hiking is an allowable activity in national parks but may not always be appropriate.
W. Lynch/Parks Canada

Reducing Impacts of Backcountry Use

The Skills Development Program at Ontario's Frontenac Provincial Park involves managing human behaviour through education in the field. The program is applicable to first-time park users and includes skiing, canoeing, and wilderness travel.

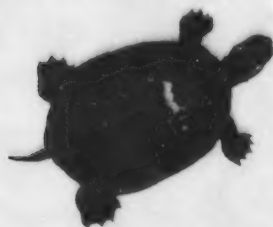
Stress is not only the result of recreational activities. Ecological stress also arises from people staying overnight in a park (camping or hotel), driving through a park, or shopping in a park.

In addition, backcountry use in national parks, while often involving relatively low numbers of people, is widely distributed. As a result, in many national parks there are few areas that have no human access or use. The cumulative impact of many people taking part in an apparently innocuous activity can result in major stresses on ecological integrity. For example, while one hiker passing through a grizzly bear feeding range may not affect bear behaviour, as few as 100 hikers in a month may cause a bear to abandon that range.

As outlined in Chapter 10, visitors need to understand why their use of parks results in stresses on ecological integrity, why some recreational uses must be re-examined or altered — and why some areas within some parks should have no human use.

A Lack of Basic Research

To welcome new uses or expanded levels of use without adequate background from scientific research (as discussed in Chapter 4) threatens the ecological integrity of both individual national parks and the national parks system as a whole. Parks Canada's actions on the subject of allowable and appropriate use are inconsistent with protecting ecological integrity, largely due to a lack of research on the impacts of visitor use.



To fulfil the obligations of the NPA [National Parks Act] and serve the people of Canada, park values must be maintained forever.

Clear service objectives must be used in determining benefit, education and enjoyment opportunities, since the provision of such opportunities must be measured against the obligations imposed by the Act to maintain the parks unimpaired. This means that not every kind of use requested by the public can be provided.

Only outdoor activities which promote the appreciation of a park's purpose and objectives, which respect the integrity of the ecosystem, and which call for a minimum of built facilities will be permitted.

As new or modified forms of outdoor recreation emerge, each will be assessed for its appropriateness nationally before consideration in the park management planning process. Individual park management plans will then specify the types and ranges of both new and existing appropriate outdoor recreation activities and their supporting facilities. PC [Parks Canada] will also periodically review its national directives to ensure that new forms of outdoor recreation are adequately considered.

Parks Canada, Guiding Principles and Operational Policies (1994)

... recent studies of older national-park golf courses (e.g. Fundy, Banff, Cape Breton, Prince Albert, Riding Mountain) report high levels of mercury residues from

There have been many calls to determine standards for levels of visitor use (often termed "carrying capacity"). However, research methods to determine standards for visitor use have not been developed or widely accepted by the research community. Even if research methods were available, Parks Canada currently lacks the capacity to implement research and to determine use standards.

There is a widespread lack of even basic data on the human dimensions of visitor use, impacts of visitor use, visitor knowledge about ecological integrity, and similar use-related issues.

For example, many parks simply do not know how many visitors use the park, for how long, or in what ways. In many cases, individual parks do not have either adequate numbers of staff or staff with appropriate training to gather such data. In other cases, the geographical configuration of a park makes it difficult to even count visitors. This lack of basic data is directly related to lack of funding.

Parks Canada has started to recognize that use must have limits, led by the Banff-Bow Valley Study released in 1996. This recognition must now be implemented throughout the entire national park system.

Allowable and Appropriate Use

Human use is part of national parks. There are, however, some uses that should be prohibited in all national parks and some activities and/or levels of activity that should not be permitted in particular parks, park areas or seasons. The need for revenue generation should not determine whether a given activity is allowable or appropriate. As discussed in Chapter 13, a solid financial audit might even reveal that the fees charged for certain activities do not meet the costs of providing that activity.

Allowable Activities

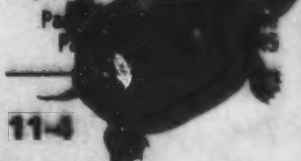
An allowable activity is defined as, "One which does not contravene the National Parks Act and Regulations for Parks Canada and which may also be appropriate to the conditions in a specific heritage area" (State of the Parks 1997 Report). Parks Canada has a long list of allowable activities, including backpacking, fishing, rafting, and heritage appreciation. Many of these allowable activities exist due to historical precedent. Some have been included as a result of particular park establishment agreements or idiosyncratic circumstances. Still others

seemed acceptable at the time they were deemed allowable, but the changing nature and magnitude of many such activities now raises questions regarding their impacts on ecological integrity.

Some activities are currently prohibited by regulations, specifically sport hunting, sky-diving, para-sailing, and off-road motorcycling. Such decisions appear to have been related to various factors, including ethical, human safety, and environmental reasons.



Cross-country skiing in Riding Mountain National Park — an allowable activity.
P. McCloskey/Parks Canada



Protecting the Full Human Experience

The human experience in protected areas derives from all the senses, but protected area managers have paid little attention to sound and light pollution.

The Torrence Barrens Dark Sky Preserve in the Muskoka region of Ontario was set aside as a protected area of Crown land in 1997. Its purpose is to protect areas of wild land from light pollution, where pristine and unobstructed night skies are visible for star gazing and astronomy, and for experiencing nocturnal wildlife in remote areas. The preserve was spearheaded by the Muskoka Heritage Foundation, a community group dedicated to protecting the natural and cultural values of the Muskoka region. The Dark Sky Preserve has the full support and approvals from the Ontario Ministry of Natural Resources and local and district councils, and is the first reserve of this kind in North America. It also demonstrates the various roles that non-governmental organizations play in supporting protected areas.

Still other activities have no clear status — including, baseball, bicycle races, competitive orienteering, cricket, curling, use of personal watercraft (jet-skis), lacrosse, lawn bowling, rodeos, running races, and triathalons — all of which have occurred at one time or another in national parks.

The Panel recognizes that prohibition of activities with a long history in national parks, or removal of specific facilities related to those activities, is controversial.

To make specific decisions and to deal appropriately with conflicts between use and protection, Parks Canada needs a formal process to determine:

- the current allowability of existing uses and facilities;
- the allowability of expanding existing uses and facilities;
- the introduction of new uses and facilities.

Currently, there is no systematic framework in place to make decisions regarding allowability. The list of allowable and prohibited activities is the result of unrelated historical decisions that have not been subject to formal review.

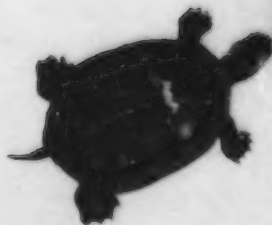
Recreational activities that are not inherently related to the nature of national parks should be declared as not allowable in national parks on both ethical and environmental grounds. Such activities should be explicitly prohibited by national policy. For instance, golf is an activity that is unwarranted in national parks on both ethical and ecological integrity grounds. Even if golf courses were to be "greened" (reduced pesticide and fertilizer use) they still consume considerable physical and financial resources and have no inherent relationship to the nature or values of national parks. Other activities — lawn bowling, for example — may be relatively environmentally benign, but have little or no relationship to the values of protected nature and should not be allowed.

The decision to declare an activity as not allowable could also be made on the basis of an ethical argument related to wilderness values and aesthetics, especially noise. For example, while evidence is being accumulated concerning negative impacts of personal water craft (jet skis) on water quality (VanMouwerik and Hagemann, 1999), jet-skis should be declared not allowable simply because the noise that they generate conflicts with wilderness values and aesthetics. The United States National Park Service is well advanced in this area, having developed a policy on soundscapes and lightscares — regulations concerning types and levels of sound and artificial light that are appropriate in national parks.



Even apparently innocuous activities such as bird watching or wildlife viewing may have impacts upon ecological integrity.

A.F. Heinsley/Parks Canada



Banff-Bow Valley Task Force: Principles for Human Use Management

The Banff-Bow Valley Task Force developed a set of principles for human use management that may have general applicability to all national parks.

1. Maintaining ecological integrity in the entire park is paramount.
2. All management decisions about human use must be based on the principles of precaution. When there are no data to guide managers in making decision, the principles of precaution and the maintenance of ecological integrity take precedence over social, economic or political choices. Uncertainty about the impact of a decision necessitates a conservative approach.
3. It is important to maintain visitor satisfaction in all designated zones, while respecting the need to protect the park's natural and cultural resources.
4. It is important to maintain sustainable tourism.
5. To the greatest extent possible, the effect of human use in the communities should remain within their boundaries. It should not affect the ecological integrity of the rest of the park.
6. Any system to manage human use in the park must consider equity of access by Canadians. Allocation of use must be fair and equitable and accommodate the largest number of people possible, without infringing on ecological integrity or visitor satisfaction. Residents or other special interest groups must not have preferential access.
7. Any group that proposes to increase use beyond current levels must demonstrate that it will not have a negative impact on ecological integrity or visitor enjoyment. The responsibility for demonstrating the acceptability of the proposed change rests with those proposing the change.
8. Public involvement is crucial in the allocation of human use and in the implementation and successful operation of human use management systems.
9. The opportunity to see, enjoy and learn about wildlife is achieved through education and interpretation on and by reducing the risk of human/wildlife conflicts.

adapted from the Banff-Bow Valley Study (1996)

Appropriate Uses

Appropriate uses are a sub-set of allowable uses. An appropriate use is one which:

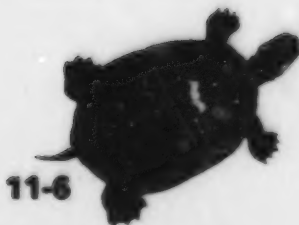
- is consistent with these [Parks Canada Policies] and the protection of ecological and/or commemorative integrity of protected heritage areas;
- is especially suited to the particular conditions of a specific protected heritage area, and- provides the means to appreciate, understand and enjoy protected heritage area themes, messages, and stories.

Parks Canada, Guiding Principles and Operational Policies (1994) p. 118

There are two measures of appropriateness: appropriate uses and appropriate levels of use. Some very good work has already been done in developing guidelines for Appropriate Activities Assessment (both Nilsen, 1994, and

the above Principles for Human Use Management developed by the Banff-Bow Valley Task Force). More national-level guidance is required.

Some activities or some levels of activity should be subject to a sanctioned process of demand management. Demand management is "a co-ordinated set of activities which involves influencing the type, level, timing, and character of demand, in such a way that it matches an organization's objectives" (Parks Canada, Draft findings and recommendations: Demand Management Workshop (1999)). There are many mechanisms for demand management, including instituting quotas, reservations, waiting lists, higher prices in peak seasons, and interpretation and outreach programs. However, it may not be sufficient to simply curb current levels of visitor use, to say nothing of anticipated future increases in visitor use.



Eliminating an activity entirely may be the only form of management that is suitable in some circumstances where ecological integrity is seriously threatened. An allowable activity may be deemed inappropriate for an entire park or an area within a park for various reasons — season, level of use, conflict with national park values.

The Panel is firmly of the opinion that, even if hard scientific evidence on the negative impacts of an activity is not available, the precautionary principle should be the rule in deciding whether an activity should be allowed in particular situations.

One example of an allowable activity that has been deemed inappropriate in most national parks is recreational snowmobiling. It currently occurs only in a small number of national parks because of park establishment agreements, but there is pressure on other parks to permit it. Such pressure is likely to increase, in part because of the growing movement to create a system of national snowmobiling trails. While noise alone may be a serious problem, there is also biophysical evidence against snowmobiling. Recent research conducted by the United States National Park Service has documented air and water quality concerns related to snow-

While rafting, canoeing, and kayaking are — and should be — allowable activities, they are deemed inappropriate where these activities threaten waterfowl, such as breeding Harlequin ducks in Jasper National Park. Similarly, trail hiking is frequently deemed inappropriate when it conflicts with animal migration, breeding, or feeding ranges or when it endangers human safety.

Allowable activities such as hiking and nature photography become inappropriate when particular levels of use threaten ecological integrity. A prime example is limiting the number of birdwatchers at certain times of the year, as has been done in Point Pelee National Park. Similarly, large numbers of campers place serious stresses on ecological integrity from pollution, sewage, garbage, and blocking animal corridors. Defining appropriate limits on camper numbers is one means of reducing impacts from this otherwise allowable activity. However, we argue that overflow campgrounds should be prohibited. Overflow campgrounds have very low levels of servicing and are inherently more stressful on ecological integrity than permanent campgrounds.

Currently, some parks are allowing certain uses (such as rabbit snaring or snowmobiling) simply because other parks must allow such uses as stipulated in their park establishment agreements, thereby setting apparent precedents. This is not an acceptable means of determining appropriateness (and as mentioned earlier, the listing of these activities as “allowable” must be re-examined). Pressures from local interests often sway decisions on appropriate activities, despite potential for damage to ecological integrity.



Cars on the beach at Point Pelee National Park — formerly an accepted activity, this practice has been banned. Parks Canada

Reducing Impacts in Point Pelee National Park

Enormous visitor pressures in one of Canada's smallest national parks threatened to degrade the park environment beyond hope of recovery. Several excellent initiatives, which have been widely accepted by park visitors, have been taken, including:

- excluding cars south of the interpretive centre and introducing a shuttle between the centre and the south point;
- limiting visitor entry to a maximum number;
- closing pedestrian traffic across the dunes, and limiting visitor access to specific locations;
- providing a solar-powered toilet facility at the tip of the Point. This measure reduced the ecological impact of the facility and provides a concrete demonstration of commitment to ecological integrity that can be highlighted in interpretation programs.

mobiles (Flores and Maniero, 1999; VanMouwerik and Hagemann, 1999).





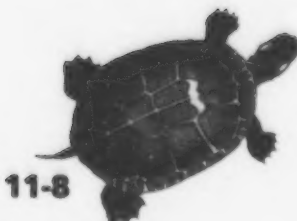
Backcountry campers need to understand the potential impacts of their activities.
J. Woods/Parks Canada

Some activities that were permitted in park establishment agreements also raise challenges about who should be allowed to participate in an activity. The definition of who can participate was not always clear in the agreements, thus raising issues of fairness and equitable access. For example, if snowmobiling is permitted, should it be restricted to local residents only or should it be open to non-local tourism operators? These issues represent a slippery slope, with the potential for making some activities broadly accessible in most or all national parks, even though those activities were deemed allowable based only on a specific park agreement for a specific reason.

Appropriate activities in national parks, and required facilities, should meet all of the following criteria related to ecological integrity:

- appropriate in terms of "basic and essential" services. A clear definition of this term is needed, such that individual parks can make decisions regarding what activities are "basic and essential." Criteria to define "basic and essential services" should reflect national park objectives in maintaining ecological integrity, and be consistent with and dependent on appropriate enjoyment and appreciation of park values;
- appropriate in terms of local environmental, social, and economic conditions. For example, bird-watching may not be appropriate if it occurs during nesting season;
- appropriate in terms of numbers of visitors and timing. For example, many parks are stretched beyond their management capacity during peak summer weekends; in such cases, reservation systems are warranted;
- appropriate in terms of demand for long-term use. For example, research is needed to determine the demand for new activities that require major investments of both personnel and money.

The Panel also notes that the combination of activities and uses creates "cumulative effects" that, in combination, can be more harmful to ecological integrity than the individual activities or uses by themselves.



Historical Precedents and Non-conforming Uses: A Clarification



Removing major developments in national parks, such as ski resorts, may be more environmentally harmful than allowing such developments to remain.
Blackbird Design

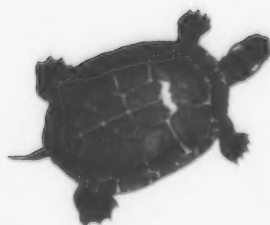
Some current activities, facilities and related infrastructure will be determined to be inappropriate under our proposed assessment framework. The question remains as to how to manage these "non-conforming uses." For example, what would happen if, through a formal review, downhill skiing was determined to be not allowable and/or appropriate? Would the existing ski facilities in national parks be required to be shut down?

The Panel is of the opinion that such action would be unjustifiable, on historical and economic grounds. Existing ski resorts are found in national parks because they were acceptable at the time they were introduced. If they were removed, ski resorts might be re-built in areas outside and perhaps adjacent to national parks, thus creating more stress on the ecological integrity of greater park ecosystems or of other protected areas.

In our opinion, facilities and activities that do not meet the criteria for appropriateness should be discontinued wherever feasible. However, large-scale facilities that are deemed not allowable and/or appropriate should be managed as "non-conforming uses." In other words, such facilities would be allowed to continue to exist and treated fairly. Parks Canada should allow no expansion (other than existing contractual obligations), curtail any aspects of facility operation that clearly and directly affect ecological integrity, and work together with the facility owner/operator to mitigate and minimize stress on ecological integrity.

Parks Canada should review every existing facility and use in every national park to determine allowability and appropriateness, and not allow the continued existence of non-conforming uses or facilities to be a precedent for permitting similar facilities to be built in other national parks.

If non-conforming facilities become economically non-viable, no longer popular, or are determined to have undue impacts on ecological integrity, Parks Canada should take steps to permanently remove them from the parks.



Aboriginal Uses

The issue of harvesting and other activities carried out by Aboriginal peoples in national parks, and the issue of uses allowed under park establishment agreements, are separate from determining what constitutes appropriate use for most park visitors. This is because the right to such use arises from constitutional decisions or legal precedents. These issues present a significant dilemma, that of allowing a specific group of people to partake in activities prohibited to the public at large.

Traditional use of water, land, plants and animals is based on a cultural commitment to conservation, a shared responsibility that is understood and honoured among Aboriginal peoples. Continuing to help Canadians understand and trust this Aboriginal sense of connection to and responsibility for the land could eventually lead to broad acceptance of Aboriginal harvesting and other uses within national parks. Both Parks Canada and Aboriginal peoples can make significant contributions to developing this trust, in part through interpretation and outreach programs.

Parks Canada must develop national-level guidance on the question of allowable uses by Aboriginal peoples, with or without park establishment agreements, including benchmark areas within national parks where no harvest of any kind occurs.

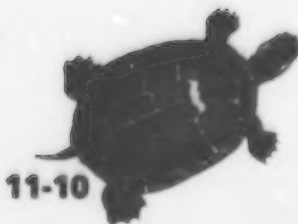
Ecotourism: Allowable, But How Appropriate?

"Ecotourism" is a common buzz-word in the fields of tourism and recreation. The Panel heard on many occasions that ecotourism is the desirable form of tourism and that ecotourism is necessary to save protected areas from the evil impacts of mass tourism.

The term "ecotourism" has been used for over two decades. It is one of a long list of terms that have been put into juxtaposition with mass tourism. Other terms include green tourism, soft tourism, alternative tourism, community-based tourism, New tourism, nature tourism, adventure tourism, and so on. The common argument is that mass tourism is bad and these forms of tourism are good — or at least better.

We have heard ecotourism being defined as any form of recreation that is based on presumed low-impact use of the environment. This view potentially encompasses a range of park users who appear to be engaged in benign activities but whose impact on ecological integrity may be large, such as:

- park visitors who arrive in their motor homes to go bird-watching;
- visitors who stay in a luxury park lodge and go for a hike or take a rafting trip;
- visitors who take chartered planes into remote northern parks, bringing in all their own equipment, to hike or camp.



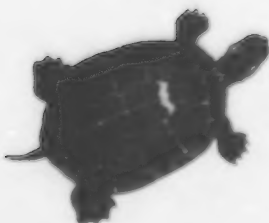


Cycling in Yoho National Park could be called an "ecotourism" activity.
W. Lynch/Parks Canada

In theory, bird-watching, hiking, rafting, and taking pictures are benign and are therefore appropriate. However, in practice, timing and levels of use are often ignored. In addition, broader impacts are not taken into account, such as impacts caused by travel to and from the park, the purchase of high-tech equipment and services, the on-site servicing requirements (water, sewer, waste management, energy), and the potential lack of positive local economic impact.

An ecotourist might be more environmentally responsible or aware than an ordinary tourist, but to be truly less harmful than mass tourism, the Panel argues that true ecotourism would:

- include types and levels of activities that are appropriate to the local setting and to regional/national interests;
 - use facilities designed and constructed to be locally appropriate, with an emphasis on local materials and skills;
 - cause or use developments appropriate to the needs of the local community;
 - provide local people with maximum opportunities for employment at all levels, from ownership to management to operation;
 - incorporate an educational component.
- These conditions are extremely demanding. Despite the fact that many activities in national parks are called ecotourism, it is the Panel's view that few current or proposed activities in Canada's national parks meet these stringent criteria. In place of the fuzzy term ecotourism that is currently used widely but defined rarely, national parks should focus on the concept of recreational activities that meet a set of characteristics and standards of allowability and appropriateness that are primarily based on ecological integrity.
- be defined clearly as a particular bundle of allowable and appropriate recreation activities and related facilities and services;
 - cause minimal negative effects in terms of environmental, social, and economic impacts;



RECOMMENDATIONS

11-1. We recommend that Parks Canada develop a formal assessment program for assessing activities in national parks with ecological integrity as the determining factor.

This assessment should:

- assess each activity nationally for allowability, with the assessment to be approved by the Director General of Ecological Integrity;
- assess each allowable activity at each national park for appropriateness, with the assessment to be approved by the Field Unit Superintendent with guidance from the Director General of Ecological Integrity;
- not allow or consider any new activities as allowable or appropriate without undergoing an assessment at the national level;
- using the Banff-Bow Valley Round Table process as an example, develop a set of conditions and standards to determine whether a particular activity and a particular level of use are appropriate in specific situations in terms of ecological integrity;
- use the precautionary principle as the primary guide in determining the appropriateness of types of activities and levels of use in national parks;
- use the following criteria as measures of the appropriateness of each allowable activity:
 - appropriate in terms of “basic and essential” services;
 - appropriate in terms of local environmental, social, and economic conditions;

- appropriate in terms of numbers of visitors and timing;
- appropriate in terms of demand for long-term use.

The framework proposed by Nilsen (1994) is a useful starting point for developing these policies and programs.

11-2. We recommend that Parks Canada phase out inappropriate recreational uses of national parks, over time and as opportunities arise, including those that are deemed “non-conforming uses.” (See also recommendations in Chapter 12.)

Note: this recommendation is related to recreational activities and does not include traditional activities that are part of a park establishment agreement.

11-3. We recommend that Parks Canada adopt demand management as an explicit policy, provide increased support for social and natural science research related to demand management, and address demand management in each park’s Park Management Plan and interpretation programs, so that visitors and other audiences can understand why they should support demand management.

11-4. We recommend that Parks Canada develop a national directive to define “basic and essential services.” Suggested wording appears in Appendix C.



Railways run through several
national parks, fragmenting
wildlife habitat
Blackbird Design



CHAPTER 12: SHRINKING THE ECOLOGICAL FOOTPRINT

*Insist on the right of humanity and nature to co-exist in a healthy,
supportive, diverse and sustainable condition.*

Nilsen (1993)

The built environment of national parks, including infrastructure, visitor facilities, and the procedures needed to maintain them, directly affects ecological integrity and visitor's perceptions of Parks Canada's commitment to it. There is a need for mechanisms that will contribute to, rather than work against, ecological integrity.

Managing the environmental aspects of the built environment can be done through three mechanisms:

- designing the built environment to minimize, or eliminate where possible, the ecological impacts of human activities;
- incorporating state of the art, ecologically sustainable infrastructure technologies, services, and maintenance operations in such a way as to eliminate or minimize ecological impacts;

- undertaking strong environmental assessments to determine whether, and how, new infrastructure should be built or existing infrastructure should be altered or decommissioned.

A Task for Everyone, Every Day

Successfully limiting the size and impact of the built environment will require that responsibility and accountability for ecological integrity become part of the daily tasks of every national park staff person. Additionally, protection of ecological integrity must translate into appropriately-designed and operated infrastructure.



For the most part, this capacity does not exist currently and there are no resources to support the changes proposed by the Panel. If Parks Canada is to "walk the talk" and be a model of environmental sensitivity, new resources and staff skills will be necessary.

Shrinking the ecological footprint, both in terms of built environment and human behaviour and actions within national parks, is a positive objective that presents a "win-win" situation: the environment wins, and park users win through better-designed facilities and built environments. Limiting the ecological footprint while maintaining opportunities for appropriate human use and visitor satisfaction offers exceptional opportunities for innovation.

This chapter builds on Parks Canada's system-wide directive developed as a result of the Banff-Bow Valley Study and endorsed by the Minister of Canadian Heritage. In June 1998 a Ministe-

rial Statement established the principle of "no net negative environmental impact" for park communities. This principle is also enshrined in the proposed new National Parks Act. This principle raises the benchmark for environmental management of daily operations within national parks. The Ministerial Statement specifies that the "no net negative environmental impact" principle will be achieved through environmental stewardship, and taking corrective action on any environmental stresses that yield negative impacts, such as solid waste, water management and transportation.

The directive also sets legal boundaries for each of the seven communities located within national parks, establishes permanent caps on commercial development and establishes the statutory requirement to use the "no net negative environmental impact" principle in all community development plans.

Ecological Design

The "ecological footprint" is the human mark upon the landscape. The ecological footprint encompasses urban development and associated infrastructure such as water, sewage and waste disposal systems, roads, parking lots and facilities such as trails, ski developments, and golf courses.

Ecological design involves the concept of sustainability. The purpose of ecological design is to eliminate or greatly reduce the effects of human activity and use of the landscape through sensitive site planning and design. As a proactive discipline, it integrates ecological integrity

with appropriate levels and types of use in relation to specific ecological conditions, locations and sensitivities. The

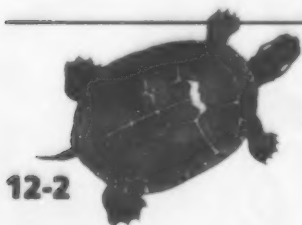
result is a determination of the limits of acceptable change — thresholds below which the use of parks is compatible with the maintenance of ecological integrity.

Consideration of design from an ecological integrity viewpoint entails several key principles:

- ecological integrity should take precedence over aesthetics;
- future retrofits of park communities should be based on contemporary theory and practice in community design and environmental sustainability;
- every design solution should reflect the unique regional setting of the national park — its inherent sense of place;

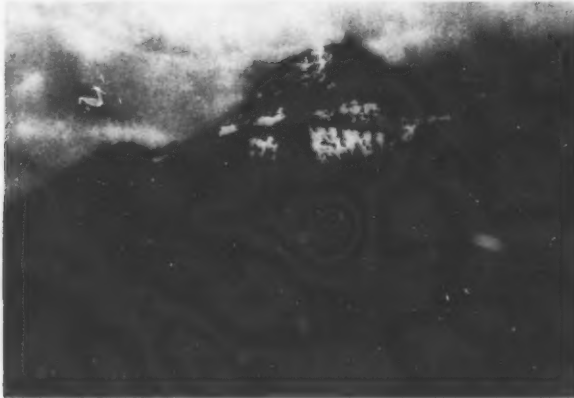
...sustainable site design requires holistic, ecologically based strategies to create projects that do not alter or impair but instead help repair and restore existing site systems. Site systems such as plant and animal communities, soils and hydrology must be respected as patterns and processes of the living world. These strategies apply to all landscapes, no matter how small or how urban.

Nilsen (1993)



The ecological footprint of the park community of Waterton is relatively large for the town's population
P. Wilkinson

- every ecological design solution should present multiple benefits. For instance, well-designed storm water ponds and constructed wetlands make major improvements to water quality and at the same time create wetland habitats. In addition, ecological design solutions may be less costly than conventional designs and have considerable interpretation and aesthetic value.



Park Communities

The present physical planning and design of communities within national parks is inconsistent with protecting ecological integrity. Barring a scenic backdrop, there is little or no difference between a town or settlement located in a national park and a town or settlement located anywhere else. National park communities should be models of ecological sustainability, reflecting their unique location and the parks' primary focus on ecological integrity.

There are commendable applications of sensitive ecological design in individual park communities, and there is, currently, a movement in a number of parks to address the environmental impacts of park communities. This includes physically reducing the community's ecological footprint by dismantling and closing down facilities, and reducing the effects of an activity through environmental design and stewardship.

Shrinking the Ecological Footprint

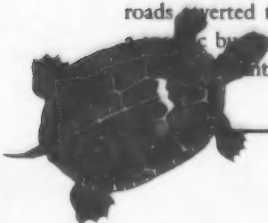
In Banff National Park, several actions arising from the 1996 Banff-Bow Valley Study, the April 1997 Banff National Park Management Plan, and decisions made in 1998 pertaining to the town of Banff, are reducing the ecological footprint. These actions include:

- the town boundary is in the process of being reduced by approximately 18 per cent;
- a former cadet camp in a wildlife corridor is being dismantled;
- recreational use of the air strip has been stopped;
- the bison enclosure has been removed (the bison have been relocated to another park);
- horse corrals have been relocated;
- leasehold properties are not being developed.

Such efforts are not limited to Banff. Caps are being placed on all park communities and the amount of commercial infilling drastically reduced from previous plans. Community boundaries are being reduced. The town of Jasper could have allowed up to 5,292,800 square feet of commercial development, whereas the current plan recommends only 1,319,499 square feet. Similarly, the community of Waterton could have allowed 770,459 square feet of commercial development but the current Park Management Plan permits 392,934 square feet.

Staff and public vehicular use of fire roads in Banff National Park was eliminated almost 20 years ago and those roads converted to trails. Public access to Lake O'Hara (in Yoho National Park) has been controlled by setting a daily capacity and controlling the number of back country campers. Mountain bikes have been banned from the Iceberg Creek trail in Banff National Park.

Field Unit Superintendent, submission to the Panel



There are numerous examples of inappropriate development practices that are jeopardizing ecological integrity, in many aspects of the design and management of park communities and their associated infrastructure. Socially and ecologically responsible sustainable practices that have entered mainstream thinking in Canada's major urban regions are still absent from the planning and operation of most national park communities.

Factors associated with park communities that negatively affect ecological integrity include the following:

Location and siting. Some communities block essential wildlife corridors, inhibiting natural movement and encouraging wildlife to invade communities (such as in Waterton Lakes, Banff and Jasper). This situation leads to conflict: animals become habituated to humans and lose their fear of people, and people assume the animals are "tame" and approachable, creating significant potential for injury to people and wildlife.

Low-density development. Large areas of poorly designed and used space greatly increase the impact of many park communities. So do site plans that attempt to incorporate the natural landscape into the community plan, largely for aesthetic reasons.

Requirements of infrastructure, services and roads. Much of the community development in national parks represents past approaches to human settlement that have proved to be both ecological liabilities and financially costly. These forms of infrastructure often have a negative impact on wildlife movement and do not reflect the unique qualities of the park environment. An example is in Waterton Lakes National Park, where curbs installed on a roadway became barriers to annual salamander migration. Wildlife needs could have been incorporated at the design stage rather than having to retrofit the project after construction, when the problem was discovered.

Vegetation management. The introduction of non-native vegetation in communities, park arrival areas and recreation facilities (golf courses, picnic sites, campgrounds, and so on) may threaten native plant communities, encourages wild animals to graze within developed areas, diminishes the natural attributes of the park's surrounding natural region and are inappropriate to the park experience. Lawns affect ecological integrity from the application of fertilizers and pesticides. Although the public may appreciate well-kept lawns for recreational and visual reasons, and they may perceive an "unkempt" or "wild" appearance as a poor reflection upon park maintenance practices, in fact within the context of a national park the "wild" look is completely appropriate. This new or redefined aesthetic must be communicated to park staff and to the public. Further discussion on actively managing to remove non-native plant species is in Chapter 5.

One possible reason that national park communities do not reflect ecological sensitivity in the way that they should is because there is no broad vision for ecological design of park communities. In addition, neither Parks Canada nor Public Works and Government Services Canada have the necessary skills to create ecologically-sensitive design.



This hotel is outside the main area of Waterton, thus increasing the town's ecological footprint
P. Wilkinson



Among the potential means available for decreasing the ecological footprint caused by park communities is to cap development at current levels and to stimulate greater efficiency in the use of infrastructure. The proposed new National Parks Act will provide the Minister with specific powers to cap development. Redesigning and rebuilding infrastructure elements with state of the art technologies and sustainability in mind will also serve to

reduce the ecological footprint over the long term. The Panel notes that the October 1999 federal Speech from the Throne made mention of "green" infrastructure funding. Parks Canada has an opportunity to make use of a portion of this funding to build or retrofit park infrastructure.

Reconfiguring existing park communities represents not only a significant challenge but also a significant opportunity for progressive and innovative design. Opportunities also exist for Parks Canada to advocate similarly progressive improvements in settlements adjacent to national parks — another potential benefit of advocacy and regional integration. In addition, urban outreach programs focused upon "green" infrastructure design and implementation in parks can illustrate ecologically sustainable choices. Developing environmental awareness and ethics in this way will help foster broad support for Parks Canada's primary mandate of protecting ecological integrity in national parks.

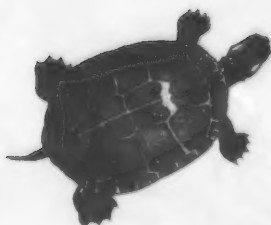
A Model for Park Community Planning

Field, British Columbia, is a community of approximately 300 residents in Yoho National Park. In 1998 Parks Canada undertook the development of a community plan for Field. Community residents had extensive input to the plan's development.

The plan's principles support the national park's mandate:

- no net negative environmental impact - the plan reduces the village's boundaries by approximately 40 per cent and restores a significant wildlife movement corridor. The plan includes provisions for monitoring and possible additional mitigation as required;
- appropriate use guidelines - the plan includes a framework for defining and providing "basic and essential" services. Only those development proposals that are consistent with the guidelines will be approved;
- responsible growth management - the plan fixes limits to growth and density for residential and tourist accommodation, commercial and industrial development;
- leadership in environmental stewardship and heritage conservation - the plan includes recommendations for landscape improvements within the village, including reduction of non-native plant species and ways to discourage large animals from entering the village. Energy and water conservation initiatives will be pursued by village residents and interpretive materials will outline the community's efforts toward sustainability.

adapted from the Field Community Plan



Facility Upgrading

The condition of structural assets in national parks (picnic/day-use areas, recreational services, backcountry facilities, highways) is rapidly deteriorating and warrants upgrading or replacement. *"Approximately 35% of all assets are in either poor or closure condition. These assets are worth roughly \$2.3 billion of the \$6.4 billion total of all contemporary and historic assets"* (State of the Parks 1997 Report, p. 99).

Prior to upgrading an asset, an environmental assessment should be undertaken to determine whether it would be more financially and ecologically advantageous to withdraw the asset. Upgrading should always take into account appropriate types and levels of visitor use. This might mean that assets are upgraded to a level of use that is below peak demand, which in itself would be a form of demand management (as described in Chapter 10). Upgrading should be based on new designs of facilities and services that have as small an ecological effect as possible and should be linked to ecological restoration programs. Upgrading funds should be limited to current assets; that is, they should not be used to construct new facilities.

As an example of innovative ecological design, Parks Canada could consider using various forms of tertiary biological water treatment systems for purifying domestic sewage when installing or retrofitting these facilities. Solar aquatic septic treatment systems, for instance, use aquatic plants to achieve high water quality tertiary treatment. They are becoming increasingly common throughout North America because they can provide a less costly and sustainable alternative to conventional treatment. Examples in Toronto alone include several Toronto School Board nature schools, and the Ontario Science Centre.

Infrastructure Renewal and Re-evaluation

National parks contain an array of infrastructure from visitor centres and park offices to trails, interpretation displays, campgrounds and roadways. Most of these facilities have not been upgraded and are either out of date or in a state of disrepair. Interpretation displays, for example, are often 15 to 20 years old with worn flooring, washrooms, heat, light and water systems (to say nothing of outdated interpretation materials and incorrect messages). Many park offices are similarly degraded. For example, in Pacific Rim National Park Reserve the warden building was recently destroyed when it collapsed under a heavy snow load, and a second building has been condemned.

Degraded capital assets can have both direct and indirect effects on ecological integrity. In some situations the degraded infrastructure may pose a direct threat to ecological integrity if facilities are no longer adequate to protect sensitive environments. For example, inadequate sewage treatment facilities threatens water quality in 14 parks (State of the Parks 1997 Report). More commonly, declining park infrastructure can pose health or safety risks to employees or have a significant negative effect on a park visitor's experience. When this occurs, the temptation is to quickly divert otherwise allocated funds to repair the problem.

Somewhat paradoxically, we have also heard and observed that existing park infrastructure is built to a very high standard that is sometimes overbuilt and tends to overwhelm the desired experience of nature. Public washrooms at Long Beach in Pacific Rim National Park Reserve are just one example of overbuilt facilities.



We learned that the agreement between Parks Canada and the federal Treasury Board related to revenue and government credits is insufficient to maintain park infrastructure such as roads, buildings and campgrounds. Currently, a government-wide initiative is under way to assess the magnitude of the problem of degraded assets. The Panel notes that the current asset review does not include:

- any evaluation of the necessity for appropriate standards for park infrastructure (regardless of its condition) to maintain or enhance ecological integrity;
- the potential of infrastructure to have a negative impact on ecological integrity;
- evaluation of opportunities to decommission infrastructure that would result in a win-win situation — an improvement to ecological integrity as well as reduced capital and operating costs.

For example, in Waterton Lakes National Park, the Panel was told the park's ecological integrity was threatened by over-development. Both major valleys in the park contain roads and even the minor valleys contain hiking trails or campsites. Even if the park's ecological integrity was not at risk, it seems obvious that any asset review would question the value of

maintaining both major roadways and associated facilities such as traffic pull-offs, picnic sites and interpretation signs. Given the impacts to ecological integrity of intensive, car-based recreation, it seems reasonable to evaluate removal of one of the roads and its accompanying facilities. This would enhance ecological integrity and result in reduced infrastructure maintenance.

The Panel is concerned that the narrow framework of the current asset review has been designed for the needs of the federal government as a whole and is not tailored to Parks Canada's distinctive mandate. This could lead to expensive capital upgrading that is not aligned with the purpose of protecting ecological integrity.

Commercial Accommodations and Facilities

Most older national parks contain a range of commercial accommodations (hotels, motels, guest cabins) and facilities (boat rentals, downhill ski centres, food service venues). The majority of these facilities are on lands leased from Parks Canada and operate under a business licence. As with Parks Canada's facilities, many of the commercial accommodations and facilities are in need of upgrading and refurbishment. The challenge is to allow this to occur without changes or additional development that might negatively affect ecological integrity.

Significant impacts from infrastructure (both commercial and Parks Canada's) were reported in 24 parks in the State of the Parks 1997 Report. This is a large and complex issue. Parks Canada must establish consistent conservation-based principles to approve any capital redevelopment of commercial accommodations and facilities.

Wildlife crossing roads creates danger for both animals and motorists J. Pleau/Parks Canada



Transportation Routes

Many southern parks are bisected by highways and some by railways. Highways and railways have huge impacts upon wildlife and can also affect water quantity and quality, air quality and a number of other aspects of a park's ecosystems.

In addition to severe problems associated with roads and highways including direct loss of habitat, habitat fragmentation, wildlife mortality and the risk of hazardous materials spills, the costs associated with maintaining roads and highways have a large impact on park budgets. Costs include not only maintenance and upgrading of these facilities but also costs from environmental assessments, staff time and resources to patrol and police these roads and the significant costs of mitigating their impacts. National and

provincial funding for maintenance and mitigation of highways has not always been forthcoming.

In the realm of design, however, we note that pilot projects are underway to mitigate the effects of roads in national parks. For example, both overpasses and underpasses have been constructed to aid wildlife movement across the Trans-Canada Highway in Banff National Park. The Panel contends however that long-term monitoring of the success of these structures is essential prior to further construction or twinning of the highway, in keeping with the practice of adaptive management.

While we recognize that there is a historical precedent regarding the presence of railways in national parks, particularly in the West, there have been few mitigation efforts to protect wildlife from conflicts with trains while ensuring that wildlife movement is not impaired. Spillage of hazardous and non-hazardous materials during railway construction and maintenance, and from materials being transported through national parks, is a continual problem.

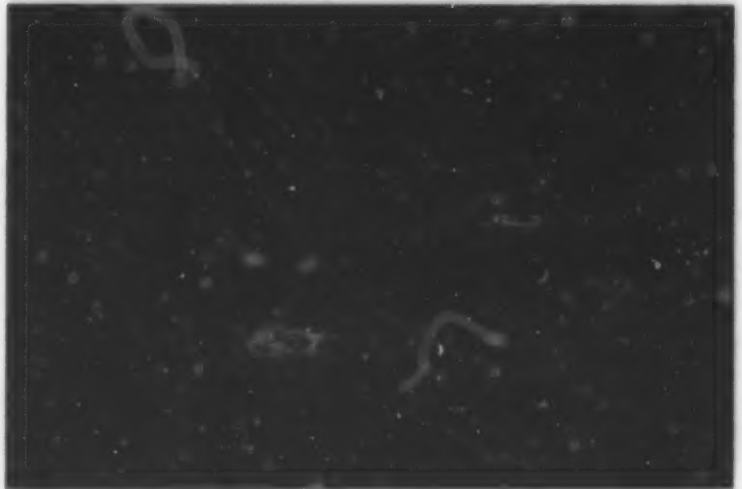
Oil Spill at Gros Morne

In August, 1999, a tanker truck carrying 38,000 litres of diesel fuel overturned and spilled its entire load while travelling through Gros Morne National Park. The fuel was spilled on a highway immediately adjacent to Bonne Bay.

Park staff and the local volunteer fire department immediately employed oil-absorbent booms and gravel berms. Within two hours, an oil spill response team arrived with more booms and absorbent materials.

Drill cores revealed that the diesel fuel had moved into fractured bedrock and was destined to slowly leach into Bonne Bay. Consequently, a rock berm was constructed to seal off the edge of the cove into which the fuel was leaking. Cleanup of the bay within the bermed area is ongoing.

Parks Canada needs to have sufficient resources and knowledge to protect ecological integrity. Without them, significant negative effects on ecological integrity will result from similar accidents.



Workers mop up spilled diesel fuel from Bonne Bay in Gros Morne National Park
P. Wilkinson



RECOMMENDATIONS

Approaches to facility and community developments in national parks need to be updated to reflect a broader ecological and social view of sustainable development and practice.

12-1. We recommend that Parks Canada establish a highly qualified core design/planning group within Parks Canada's National Office or in regional Service Centres, to be responsible for developing ecologically sensitive design criteria to ensure that ecologically sustainable design and management in all development projects in national parks is realized on the ground.

12-2. We recommend that Parks Canada procure all professional services on an open and competitive basis, emphasizing environmental performance criteria as much as other criteria such as design quality, cost, and timeliness of delivery.

12-3. We recommend that Parks Canada assess any capital redevelopment of facilities, accommodations and infrastructure belonging to both Parks Canada and to private or commercial operators.

This should be based on the following principles:

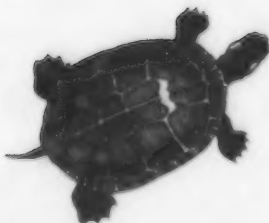
- maintenance of ecological integrity must be the first priority in all redevelopment decisions;
- apply the principle of "no net negative environmental impact" to all redevelopment decisions;
- conduct a needs analysis on all facilities, accommodations and infrastructure to determine whether they are required in the park and still acceptable, given current ecological understanding;

- all facilities, accommodations and infrastructure should be models of environmental management, including water and energy conservation, use of biocides, transportation and waste management;
- consider cumulative effects of facilities, accommodations and infrastructure at local and regional scales;
- most parks should not experience any increase in the present facility footprint;
- ensure that any redevelopment is consistent with the Park Management Plan and, if applicable, the community plan;
- facilities, accommodations and infrastructure developments should be responsible for providing staff accommodation so as to avoid undue burdens on park communities. This principle especially applies to accommodations for seasonal staff.

12-4. Over a long-term, programmed time frame, we recommend that Parks Canada redesign, replace, rebuild or remove existing facilities and infrastructure in national parks to reduce their ecological footprints.

Such improvements include:

- removing barriers to wildlife habitat and movement corridors, compacting and intensifying park communities, and using space with greater economy;
- applying ecologically-sensitive site planning for roads, parking areas and pedestrian traffic, pedestrian spaces and park arrival areas, consistent with best management practices and ecological design principles;



- modifying maintenance practices for manicured areas such as lawns, picnic sites, campgrounds and park arrival areas to a natural regime with native plants. Communicate the reasons for a "wild" or "unmanaged" appearance to park staff and to the public;
- eliminating alien, non-native plant species in park communities and open spaces;
- upgrading assets and facilities in the context of ecological integrity;
- making resources and skilled staff available in each park to conduct an environmental assessment prior to upgrading or decommissioning any asset or facility.

Daily Operations



This composting outhouse in Pacific Rim National Park Reserve is virtually waste-free. In addition, its fan is solar powered
P. Wilkinson

The infrastructure components supporting the daily operations of national parks, and the associated efficiency of resource use and treatment of wastes and pollutants, are currently inconsistent with protection of ecological integrity. An environmental management system is one tool to bring daily operations within national parks in line with ecological protection.

Environmental Management Systems

An environmental management system is a systematic, structured and accountable method for an organization to identify and manage the significant environmental aspects of its operations.

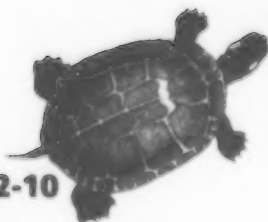
Under the 1995 amendments to the Auditor General Act and the associated Guide to Green Government signed by Cabinet, federal departments and agencies are required to develop and implement sustainable development strategies and environmental management systems and to report annually to Parliament on their progress and implementation. In 1997, Parks Canada confirmed that the ISO 14004 international standards would be the foundation for Parks Canada's environmental management system.

Environmental management systems are used within Parks Canada to ensure appropriate environmental management of Parks Canada's operations. They are not intended to direct the mandated activities of Parks Canada such as the protection and presentation of natural and cultural heritage.

The purpose of Parks Canada's environmental management system is:

To contribute to improving the Canadian Government's environmental performance and supporting the international effort to strive towards sustainable development, by preparing and implementing a uniform management system application to all sites administered by Parks Canada.

Parks Canada's Environmental Management System 1997, p. 1



A Missing Connection

Despite Parks Canada's commitment to an environmental management system, the Panel observed numerous examples of park operations causing internal ecological stresses. Examples include:

- inadequate waste water treatment for some park communities is resulting in deteriorated water quality and ability to support an unimpaired aquatic system;

Environmentally Preferred Products and Procedures

Environmentally benign cleaning products are now widely available. In some instances, "green" products may not be equal to the task of heavy-duty cleaning for floors, showers, toilets or other high-use facilities. However, even if industrial-strength or toxic substances must be used until a superior "green" product is available, simple procedures or product substitution can regulate or reduce the amount of toxic substances used.

In addition, materials and colours chosen during the design of public facilities can have a critical effect on the types and amounts of cleaning products — including chemicals, paper, water and power — required over the facilities' lifespan. A simple design choice such as avoiding white surfaces or fixtures in favour of a darker colour can significantly reduce the materials and energy used for cleaning. The Panel notes that janitorial and cleaning/maintenance staff in many parks are rarely if ever consulted during facility design yet these people have considerable experience and innovative ideas to share.

- a pier under construction without the required permit from the Department of Fisheries and Oceans;

- use of pressure-treated lumber for pier construction, with potential for contaminants to leach into aquatic ecosystems;

- a small oil spill adjacent to a waterway during routine maintenance;

- the absence of sustainable solid waste management programs in most parks;

- environmentally harmful cleaning fluids used for building maintenance.

At a minimum, an environmental management system is a key method of bringing environmental considerations and ecological integrity protection into the daily operations of every staff person in every park. At a more ambitious level, environmental management systems can be a key tool for achieving the high standards of environmental performance in Parks Canada's operations that are part of the requirements for maintaining ecological integrity in the parks.

Day to day activities profoundly influence the ecological integrity of the parks. There is a need for Parks Canada to promote support and participation on the part of all park staff, which could be facilitated through respect and acknowledgement for innovation and ideas from all staff levels. Park maintenance and operations personnel have pride in their work and have plenty of practical experience to share. Consultation and feedback can work both ways (bottom up and top down) to ensure that all park staff are involved in maintaining ecological integrity regardless of the job they perform.

Using Environmental Management Systems to Achieve Legislative Commitments

An environmental management system also can be a tool for managing and monitoring and managing for "no net negative environmental impact." This will require stretching Parks Canada's environmental management systems from their current minimalist focus on compliance to a more ambitious focus on environmental excellence.

For example, the environmental management plans presently do not include targets to reduce greenhouse gas emissions, notably from vehicular sources, nor targets for managing vehicle emissions in national parks. By buying "green" electricity (generated from renewable sources such as solar or wind



"Green" energy is available to some national parks, such as the electricity generated by these windmills near Waterton Lakes National Park. Blackbird Design

power) and implementing efficiency and economy measures for energy, Parks Canada can contribute to the transition away from fuels that contribute to climate change, acid deposition, and smog. In this manner, Parks Canada would bring its moral authority and buying power to help society at large make the shift towards more environmentally sustainable practices that will themselves reduce many of the external stresses on parks. By setting a good example, Parks Canada can help to persuade industries, project developers, communities and individual Canadians to change their decisions and actions in favour of environmental sustainability.

This same principle has relevance for efficiency measures for the use of water, the development of solid waste and recycling programs (where support industries are available or can be developed) and the use of environmentally benign cleaning materials.

Finally, by showcasing leading environmentally appropriate technologies and practices, Parks Canada can bring a strong national public message of conservation, awareness of natural processes, and the links between humans and ecological integrity, through interpretation programs and materials with clear messages linking environmentally appropriate actions to the protection of ecological integrity.

In keeping with the Panel's purpose to streamline park planning and reporting, we are not recommending that Parks Canada adopt the full ISO 14001 certification standard. However, public reporting on Parks Canada's environmental management achievements will support progress in this area, and increased public awareness of the links between good environmental management in national parks and the ecological integrity objective.

RECOMMENDATIONS

12-5. We recommend that Parks Canada use environmental management systems as integral to conducting daily operations in keeping with the preservation of ecological integrity.

The widespread adoption of the environmental management system could be facilitated by:

- communicating the importance of environmental management to all staff and contractors, and communicating the results of environmental management to the public through interpretation and outreach programs;
- including an environmental management system section, listing objectives, targets and progress indicators, in the State of the Park(s) reporting documents. Set environmental performance objectives in Park Management Plans and report

on attainment in State of the Park Reports.

12-6. We recommend that Parks Canada, over time, incorporate sustainable infrastructure, energy systems, materials and practices in park management and activities. There are many ways to achieve this recommendation, such as:

- using benign technologies for energy systems (photo-voltaic solar power, wind turbines) or purchasing "green power" (electricity generated using renewable sources such as solar and wind) where this option is available;
- reducing vehicle emissions through a number of means from ensuring regular maintenance to using natural gas-powered or other low-emission vehicles;



- making tertiary treatment of sewage effluent in park communities and related park developments a priority and incorporate tertiary treatment systems as existing sewage treatment facilities require replacement;
- using water and energy conservation measures in all park buildings and communities; collaborate with residents and tourism facility operators to develop such conservation measures and systems;
- changing from environmentally harmful cleaning materials and procedures to benign products and procedures;
- incorporating composting systems and recycling programs in all park communities, park arrival areas, and recreation facilities where supporting recycling industries are available. Where these are not available, provide leadership to develop appropriate recycling industries working in collaboration with local and regional jurisdictions or waste management operators;
- sharing advice and expertise among parks and park staff, incorporating ideas from all staff levels to improve design, maintenance and procedures.

Environmental Assessment



This stream has been modified to reduce flooding in a campground in Waterton Lakes National Park.
P Wilkinson

approach to decision-making, and by addressing critical capability issues, Parks Canada can enhance its ability to make decisions that complement policy objectives for ecological integrity.

The Current Role

Parks Canada's policies guiding the general application of the environmental assessment process are clear. They complement the broader Parks Canada policy, which directs decision-makers to consistently support and maintain the ecological integrity of national park ecosystems.

The use of environmental assessment in national parks reflects the daily application of Parks Canada's values and priorities. Parks Canada's ability to make decisions that support and maintain ecological integrity, while addressing demands for recreational and economic opportunities within parks, is demonstrated in part by the way Parks Canada uses the environmental assessment process.

In many cases, the environmental effects of a proposed development are difficult to describe and quantify. Parks Canada has a reputation for leadership in environmental assessment of individual projects but has not yet used environmental assessment as a tool for reducing the ecological footprint of development. By reviewing project proposals from a policy standpoint, by more fully integrating environmental assessment within an adaptive



There appears to be a working assumption that the environmental assessment of a project is a de facto final review, and thus if a project's effects can be mitigated through the environmental assessment process, the project is deemed to be acceptable from a Parks Canada standpoint. Therefore, in practice Parks Canada does not often use the environmental assessment process to either approve or reject projects, but rather to find ways to mitigate the effects of proposed projects. For example, of 962 projects listed by Parks Canada with the Canadian Environmental Assessment Agency registry from April 1, 1998 to March 31, 1999, only six projects were rejected through the environmental assessment process. Instead of using environmental assessment as a decision-making process — a means of assessing and either accepting or rejecting a proposal based on anticipated environmental impacts — Parks Canada more commonly uses environmental assessment to identify mitigating, surveillance and follow-up measures for projects that are very likely to proceed. The result is that larger-scale questions, for example about cumulative effects and appropriateness in relation to policy goals, are not well addressed.

Parks Canada's goals, objectives, policies, capabilities and values must guide decisions, and this is where a gap lies at present. Environmental assessment alone can not be relied upon to produce a decision consistent with policies and objectives. However, being the only formal, documented project review process at Parks Canada's disposal, environmental assessment has sometimes been perceived as a substitute for a policy review. The important discussion about whether, from a policy perspective, a project is appropriate in terms of scale and the project's potential effect on ecological integrity, is sometimes absent and has rarely been documented.

Currently, where Parks Canada is the proponent for a proposed project, the project is discussed and approved in principle during the preparation of the park's annual plans. Projects are then refined through either a "business case" or a project approval process. These steps are oriented towards justification of the project, rather than critical review. At present, projects are not evaluated from the perspective of all relevant policies, and the manager who proposes the project is not always perceived to be accountable for ensuring that the project meets Parks Canada policy objectives related to ecological integrity.

Options which might achieve the same policy goals, but at a reduced level of development, or alternative options which reduce the need for a new service or facility instead of expanding the service or facility, should be presented and discussed at this point. The environmental assessment process has not been an effective substitute for this evaluation of lower-impact options and has not provided the required review of policy and accountability.



Policy Potential

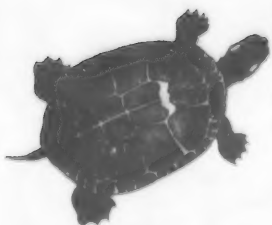
In recognition of the need to evaluate projects from the point of view of policy, Parks Canada has recently revised its directive on environmental assessment. Parks Canada now requires internally initiated projects to undergo a policy review as an initial step. An environmental assessment is not to be undertaken until the project under review is proven to be in compliance with Parks Canada legislation, policies and directions (Parks Canada 1998 Management Directive 2.4.2, Impact Assessment, General Principle 3).

Because this directive is new, formal policy reviews are not yet commonplace. It will be important to monitor the implementation of the policy review process to see whether it enhances decision-making. As presently written, the new environmental assessment directive appears to require the environmental assessment officer for an individual park to determine whether a policy review has been adequately completed for a specific project. This would be an onerous regulatory function for a single person acting alone.

When the policy review becomes standard practice, it will help Parks Canada to make decisions in situations where environmental effects appear to be minimal or are capable of being mitigated, yet the appropriateness of a project is uncertain. However, some decisions will be difficult until a specific policy regarding appropriateness is clarified (the development of such a policy is recommended in Chapter 11). For example, the following statement from Guiding Principle 7 in Parks Canada's Guiding Principles and Operational Policies is inadequate because it raises serious questions about the nature of essential and basic services, and it provides only vague direction regarding cumulative impacts: *"Essential and basic services are provided while maintaining ecological and commemorative integrity and recognizing the effects of incremental and cumulative impacts."*

Likewise, Policy Statement 3.1.2 is broadly-worded and vague. This policy could be interpreted as either banning any development — or permitting everything which is not a certain and immediate threat to ecological integrity: *"Human activities within a national park that threaten the integrity of park ecosystems will not be permitted."*

The decision-making process related to project approval is not adaptive because it lacks the prediction-monitoring-evaluation cycle that is essential for adaptive learning. There are no measures of success identified for determining whether the project continues to meet Parks Canada policy objectives during its operation. For example, once a facility or service has been built or implemented, the question might be asked: "Why bother to monitor the project's success in meeting policy objectives, since it would be virtually impossible to reverse the decision and remove the built facility?" It can be difficult and expensive to quantify how the project did, or did not, meet policy objectives. However, this cost should be built into the cost of the project, because otherwise important questions such as "Did the project meet the standard of a basic and essential service?" or "Did the project create additional demand for services?" go unanswered and the issue of accountability can not be addressed. In short, without evaluation, no learning takes place and there is no improvement to policy or procedures.



Integrating Environmental Assessment and Decision-making

The current approval process for projects and developments in national parks is linear, with the environmental assessment often viewed as a final check-off necessary for a project to proceed. Project managers, faced with meeting budgets and deadlines, may perceive environmental assessment as final hurdle, and indeed a barrier to their project, because costs may increase and schedules may have to be extended in order to meet environmental requirements. This situation results in reduced internal support for environmental assessment and maintenance of ecological integrity. Where project managers feel neither accountable for ecological integrity, nor are they invited to contribute to maintaining ecological integrity, their enthusiasm for environmental assessment may be limited.

The solution is to involve environmental assessment practitioners in all projects from the conceptual stage to completion, and to ensure that all project managers feel accountable for maintaining ecological integrity, and are entitled to make decisions and take actions in support of ecological integrity. The goal should be to eliminate conflict, and in fact develop a partnership between project managers and environmental assessment practitioners.

Environmental Assessment Capability

Generally speaking, Parks Canada does not have adequate information about national park ecosystems, particularly on a landscape scale, nor does it have sufficient staff to adequately describe and evaluate the impacts of proposals that have the potential to adversely affect park ecosystems. Staff acknowledge the urgent need to begin to understand cumulative and landscape-scale effects however they lack resources to do so at present. As a result, small-scale effects are usually well addressed, but landscape-scale effects are not.

Parks Canada has achieved some success in intervening in projects outside national parks on behalf of park and regional ecosystems, however Parks Canada must enhance its capability in this area. The ecosystem-based management approach requires that parks staff must be able to interact professionally and positively with the managers of adjacent lands, working from a basis of sound ecosystem information. Projects that may affect park ecosystems negatively will continue to be proposed. An enhancement of quantitative knowledge about how national park ecosystems are affected by external stresses is necessary for Parks Canada to intervene successfully on behalf of national park ecosystems.

The volume of requests for environmental assessments, originating from both internal and external sources, is a problem for staff on two fronts. First, dealing with the increasing number of projects is difficult from a workload perspective. Second, without having a sense of the number of projects that will be proposed in the near future, it is very difficult to avoid the "death by a thousand cuts" scenario. Parks Canada needs to address capability in environmental assessment in terms of personnel, particularly in parks that have communities, and needs to determine how to manage the increasing



flow of development requests as a way of limiting cumulative effects.

Dealing with proposals for projects within park boundaries, proposed by a commercial or private leaseholder, has occasionally proven difficult for Parks Canada. Such proposals leave park staff vulnerable to influences that may not support ecological integrity objectives, and sometimes appear to pit development against preservation. Parks Canada needs to continue to enhance its capability to deal cooperatively with stakeholders in the interest of ecosystem integrity, and to strengthen the support it provides to professional park staff so that they may provide the highest quality evaluation of environmental effects. However environmental assessment alone cannot be relied upon to resolve these issues completely. Park Management Plans should report a quantitative assessment of cumulative effects, and their sources, and identify quantitative targets for cumulative effects over the period of the plan.

One useful strategy for dealing with capability issues related to cumulative effects is to adopt the precautionary principle. Evaluating environmental impacts encompasses risk due to the variability of ecosystems, the absence of complete knowledge about ecosystems, and practical limitations on staff time. This uncertainty is well understood and accepted by assessment specialists, but it poses a serious problem from the perspective of project engineering and management. Where costs and schedules must be carefully controlled, risk is something to be minimized or avoided, not accepted.

It is critically important that Parks Canada not permit the risks generated by proposed projects to be transferred to the ecosystem. Parks Canada has many examples (dams, logging sites, contaminated sites, breakwaters) of the difficulty and expense involved in reversing a decision, or of rehabilitating sites after a project has produced unacceptable impacts. Park Management Plans should contain a statement describing how the park will apply the precautionary principle to development proposals.



RECOMMENDATIONS

12-7. We recommend that Parks Canada closely track the implementation of the new policy review component of environmental assessment at all national parks, in order to evaluate its effectiveness in enhancing decision-making related to the scale and appropriateness of proposed projects. Policy review should produce a record of decision that describes project objectives, evaluates alternatives (particularly non-development alternatives), demonstrates concordance with all relevant national park policies and identifies measures for evaluating the success of the project's implementation and operation. Information from the evaluation should be used adaptively to improve future projects and future environmental assessments.

12-8. We recommend that Parks Canada adopt the principle of integrating environmental considerations into all projects. Include environmental assessment practitioners in all phases of a project, from concept to final construction, in partnership with the project manager. As a means of ensuring that ecological integrity becomes everyone's job, project managers, not the environmental assessment practitioner, must be responsible for meeting ecological integrity objectives related to their project.

12-9. We recommend that Parks Canada enhance its expertise in understanding and managing cumulative effects (Chapter 4).

12-10. We recommend that Parks Canada provide individual national parks with the authority to set an annual date beyond which project proposals will not be accepted. This will enable environmental assessment staff to organize their workload and will provide a reference point as an aid in evaluating cumulative effects. Park Management Plans should provide an assessment of cumulative effects and identify quantitative targets for limiting cumulative effects over the period of the Park Management Plan (Chapter 3).

12-11. We recommend that Parks Canada provide training in environmental assessment for all prospective project managers, and provide professional development and networking opportunities for specialist and practitioner positions.

12-12. We recommend Parks Canada establish a policy formally adopting the precautionary principle to ensure that risk to national park ecosystems is reduced. Park Management Plans should contain a statement describing how the park will apply the precautionary principle in managing development proposals.



SECTION G: INVESTING IN ECOLOGICAL INTEGRITY



The Wickaninnish Centre in Pacific Rim National Park Reserve needs to be upgraded. P Wilkinson

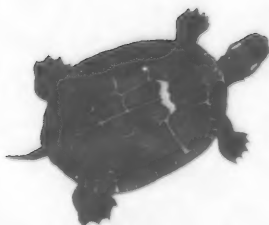
CHAPTER 13: THE NEED FOR COMMITTED INVESTMENT

National parks are a public good. It is the duty of the federal government to provide adequate financing to maintain this public good 'unimpaired for future generations'.

non-governmental organization, submission to the Panel

To pursue its objective of protecting ecological integrity in Canada's national parks, Parks Canada will need a supportive financial framework alongside a supportive management framework. The strengthening of natural and social science capacity, and the interpretation and partnership programs recommended previously in this report will require substantial additional financial resources. This new money is a necessary condition for giving a more rigorous focus to ecological integrity, but money alone will not suffice. This chapter also examines the levels of investment now spent on ecological integrity,

and recommends some reforms to the Agency's financial management and accounting procedures to improve transparency and accountability. The Panel also identifies several "first steps" needed to improve the broader management framework for ecological integrity in Parks Canada that, we recommend, should be implemented before the allocation of any new funds.



Actual Spending Levels are Difficult to Determine

The structure of Parks Canada makes it difficult to isolate financial information for national parks themselves. This is due both to an administrative structure in which national parks are managed through Field Units that frequently also include national historic sites, and the financial coding structure that only breaks down activities to this Field Unit level. Tracking and analyzing historic information on expenditures in national parks is further complicated by the fact that between June 1993 and March 1999, Parks Canada was part of the Department of Canadian Heritage and used their integrated departmental financial systems.

The Panel worked diligently with our own researchers and with Parks Canada staff to seek financial data on expenditures for the Parks Canada Agency as a whole, for the national parks component alone, and for our focus parks in particular. We were seeking

information on current and historic expenditures for all park activities and for ecological integrity initiatives in particular. Despite a strong collaborative effort, in the end this information could not be obtained in any rigorous, comparable, or reliable format. There are reasons for these difficulties, and Parks Canada appears to be making progress in establishing new structures to enable the collection of such data. Nonetheless, the Panel was deeply troubled by our inability to collect consistent information on issues as basic as total spending in national parks, as well as rigorous and consistent data on how much funding has been going to support the primary objective of national parks, ecological integrity. This confusion is indicative of the general lack of clarity, management focus, and accountability systems for the ecological integrity objective that we have discussed throughout this report.

Reduced Budgets

Note: Unless otherwise indicated, the discussion of Parks Canada budgets in this chapter refers to the operations of the Parks Canada Agency as a whole, not the national parks component.

Parks Canada has absorbed substantial budgetary reductions since 1994. These reductions have included the end of funding of the five-year Green Plan that supported the creation of new parks and sites, as well as many ecological integrity initiatives related to inventory, monitoring and research. Annual funding to Parks Canada under the Green Plan, which ended in 1996/97, was \$33.5 million. Parks Canada's share of the government wide reductions under Program Reviews I and II amounted to \$56 million annually. In addition to the above, the phasing in of previously announced budget reductions amounted to a further \$14.8 million

annually. In total, by 1998/99, Parks Canada saw an annual amount of \$104 million or 25 per cent reduction from 1994/95. One result of this funding decrease was a major re-organization of Parks Canada into a flatter organization as all overhead functions were reduced by 30 per cent.

To partially offset these reductions, Parks Canada enforced the government's cost recovery policy and reduced subsidies to users who received specific services. In the past five years, three hot springs, one golf course and six park communities have been placed in "revolving funds" to ensure cost recovery and self-sufficiency. Entrance fees to numerous parks and sites were introduced, and increases to entrance fees, camping and other recreational services were made. The revenues collected by these initiatives increased



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by \$32.3 million, or 75 per cent (from \$42.9 million in 1994/95 to \$75.2 million in 1998/99) which the new Agency now has the authority to retain. These revenues are now rechanneled, partially, to fund the development and operation of new parks and sites created since the Green Plan terminated.

Over the past five years, Parks Canada continued to receive one-time funding allocations such as strategic capital investments for the Trans-Canada Highway, cashout costs to reduce the workforce, emergency monies for forest fire suppression and severe storm damage, Agency transition costs, "Y2K" and Agency downsizing bridge financing. In addition, the Parks Canada budgets now reflect items which were previously recorded elsewhere, such as payments the Agency now makes in lieu of taxes (from Public Works Canada), and corporate services such as financial and human resource management (from the Department of Canadian Heritage). As these funded items are for specific projects or services, they cannot be used for other activities such as implementing the mandate for ecological integrity.

The influence of these one-time increases on the organization's total budget is the explanation for the appar-

ent increase in the budget, although base appropriations have declined as described above. Figure 13-1 identifies the change in Parks Canada's expenditures and revenues between 1994/95 and 1998/99.

Over the past decade, Parks Canada's financial stress has been exacerbated by the introduction of major new responsibilities without associated additional resources, such as:

- the introduction of a legislated ecological integrity mandate in 1988;
- requirements under the 1994 Canadian Environmental Assessment Act and the 1995 amendments to the Auditor General Act, requiring departments to implement sustainable development strategies;
- the responsibility to complete the national terrestrial park system by the year 2000. This commitment was first established in the 1990 Green Plan, reconfirmed by consensus of the House of Commons in 1991, more broadly endorsed by the Tri-Council of federal, provincial, and territorial ministers of the environment, wildlife, parks, and forests in 1992, and again by every subsequent Minister responsible for national parks;

Figure 13-1. Budgets for Parks Canada Agency, 1994 – 1999, All Operations

(\$ millions)	1994/95	1998/99
Total expenditures*	\$385.5	\$396.7**
National parks portion of total	\$181.3	\$224.3
National parks percentage of total	47.0%	56.5%
Number of national parks & park reserves	36	39
Number of national marine parks	1	2
Total revenues	\$42.9	\$75.2

Source: Best available information provided by Parks Canada to the Panel, December 1999

Expenditures from 1997–98 onwards have been adjusted for permanent transfers for payments in lieu of taxes and corporate services.

* Total expenditures are funded from resources from revenue generation, as listed in this table, and other resources from government appropriations.

** Fiscal 1998/99 includes a \$35 million one-time supplementary funding for project advancement.



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Pangnirtung Fjord, Auyuittuq National Park in Nunavut — among Canada's newest national parks. G. Klassen/Parks Canada

- the responsibility to establish a system of marine conservation areas was first given in 1986, and legislation to this effect is now before the House of Commons;
- since 1994/95, three new parks and one new marine park have been established.

In the recent past, Parliament has not appropriated new funds for agreements related to the establishment of new parks, nor for the subsequent operations of these parks. For the last three years, operating funds for new parks and marine conservation areas have come from the appropriations freed up under the revenue policy. The pace and cost of expansion cannot be supported by future revenue increases.

In addition to this reduction in the Parks Canada budget, allied agencies such as the Canadian Wildlife Service, the Canadian Forestry Service, and the Canadian Museum of Nature have also lost substantial funding. This widespread decline had a ripple effect on Parks Canada — professional and technical services that allied agencies had provided to Parks Canada (which had once formed the core of the senior science capabilities dedicated to Parks Canada) have been largely lost.

Agency-wide Spending on Ecosystem Research, Monitoring, and Management

A system to track expenditures with sub-categories that enable better identification of expenditures specifically related to ecological integrity activities was implemented by Parks Canada in the 1998/99 fiscal year (the Program Reporting and Accountability System, or PRAS).

Previously, such information could not be isolated. This was confirmed by the Panel's experience when we tried to collect this information from our individual focus parks, and found that there was no common understanding of what should constitute an ecological integrity expenditure, and no ready way to assemble comparable data.

The new PRAS will increase the transparency and accountability for the implementation of the ecological integrity mandate as a whole, and is a constructive and vital step forward. It is at an early implementation stage, and ongoing work is needed to establish a consistent application of the system across the entire Agency and better business and service lines to reflect that ecological integrity is the primary objective. The coding continues to be refined and interpreted, and as such, the information in this section reflects what was available to the Panel from the Agency effective mid-November, 1999.

Ecosystem Research, Monitoring and Management

Under the new PRAS, current expenditure system, ecological integrity activities fall under two categories of expenditures, defined by Parks Canada as follows:

Ecosystem Research and Monitoring:

- all work related to research on ecosystems or components thereof to advance understanding of their status, functioning and desired state for management purposes;



Budgeting for Ecological Integrity

Ecological integrity is everyone's responsibility. In that sense, all activities must contribute in some way to ecological integrity. Such activities must continue to be charged to respective budget lines and not to the ecological integrity budget, which must be reserved for ecosystem-based management, research, monitoring and ecological restoration.

- all work related to monitoring of ecosystems or components thereof to ascertain changes;
- all work related to establishment of a baseline ecosystem condition and a desired condition for each protected heritage area including indicators to be used to assess and monitor those ecosystems;
- allow monitoring of trends and condition changes over time to direct research, monitoring, and facilitate reporting such as the State of the Parks Report.

Ecosystem Management and Protection:

- all work related to interventions with ecosystems or their components, including the preparation of appropriate plans, to achieve a desired state;
- all work related to emergency protection such as fire prevention/suppression, management of insect infestations, flood/avalanche protection or control;
- all work related to undertaking the studies and implementation of the environmental assessment process;
- all work related to establishment and maintenance of compliance activities to support ecosystem protection;
- all work related to liaison, negotiation and influencing of actions on adjacent lands that may affect the ecosystems of the protected areas;
- all work related to management of harvesting activities such as sport fishing and traditional activities.

Information under these categories is collected for the Agency as a whole. In 1998/99, total expenditures on ecosystem research, monitoring, and management was \$49.38 million, approximately 12.5 per cent of the Agency's total budget and 22 per cent of the budget of the national parks component.

The Panel considers the 22 per cent figure a maximum estimate. We suspect that the amount that Parks Canada

spends directly on managing for ecological integrity is substantially less. For example, improving the boardwalks and other facilities on a major trail, which in turn will reduce impacts on the ecosystem, has sometimes been accounted to ecological integrity when in fact the ultimate purpose was to provide an enhanced visitor service. Similarly, a community plan must consider ecological integrity, but the ultimate purpose of such a plan is to manage a community responsibly.

It may be justifiable in some cases to account the mitigation of human activities and visitor services to ecological integrity budgets, but it is more accurate to account these funds towards the cost of providing the development or activity. If any project or activity which incorporates any element of ecological integrity is for accounting purposes identified as an ecological integrity project, the point is missed that ecological integrity is everyone's responsibility, and resources available for ecosystem-based management, ecological inventory, monitoring and research will be diminished. In fact, the scale of impact related to communities and large-scale development is such that mitigating those effects alone requires a very large percentage of the ecological integrity budget of most parks.

Further, there is a need for goods and services that support ecological integrity activities; for example vehicles, gasoline and infrastructure. These are high cost expenditures, which further reduce the budget available for direct action to maintain ecosystem integrity. When these costs go to support activities that only indirectly support ecological integrity, for example in support of many patrols related to public safety (such as highway traffic), law enforcement, and search and rescue, the effect is magnified.



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Interpretation

Interpretation is another line of activities in which some components are related to ecological integrity. Interpretation is listed under the title "Presentation of Heritage Resources," and includes activities at national historic sites and historic canals as well as national parks. It has been defined by the Agency as follows:

Awareness and Understanding:

- all on-site work done to make visitors to national protected heritage areas aware of the area's importance and role in the Parks Canada system, including displays, publications, and media releases related to creating awareness and understanding but not recreation oriented;
- all off-site work done to enhance appreciation of the national protected heritage system including displays, publications, and media releases, and other electronic media

related to creating awareness and understanding but not recreation oriented;

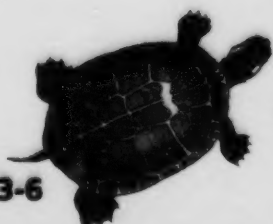
- all work related to provision of visitor centres such as media, exhibits, and presentations that results in making visitors aware of and understand the national significance of the protected heritage area;
- all work related to the management of volunteer and co-operating association programs.

Expenditures on presentation of heritage resources total \$34.26 million, approximately 8.5 per cent of the Agency's total budget. (Figure 13-2). This latter category includes many activities related to the national historic sites and historic canals side of the Agency. Information is not directly available on how much of this is spent on presentation of natural heritage resources related to ecological integrity. The best estimate the Panel could make

Figure 13-2. Parks Canada Agency Expenditures by Category 1998-1999

(\$ thousands)	Operations	Capital	TOTAL
Stewardship of National Places			
• Establishment of New Heritage Places	5,480.1	3,292.9	8,773.0
• Protection of Heritage Resources	57,398.2	21,931.6	79,329.8
- Ecosystem research & monitoring	5,878.1	4,657.5	10,535.6
- Ecosystem management	32,709.9	6,135.8	38,845.7
- Cultural resource research	3,949.4	4,208.9	8,158.3
- Cultural resource management	14,860.8	6,929.4	21,790.2
• Presentation of Heritage Resources	21,281.7	12,982.6	34,263.9
Total, Stewardship	84,260.8	38,200.7	122,368.7
Use and Enjoyment by Canadians			
• Visitor Services	39,229.8	19,926.8	59,156.6
• Townsites	3,700.3	858.9	4,559.2
• Through Highways	9,031.8	8,044.5	17,076.3
Total, Use and Enjoyment	70,154.5	28,830.2	98,984.7
Corporate Services			
• Management of Parks Canada	91,068.9	39,011.6	130,080.5
• People Management	13,371.5	180.2	13,551.7
Total, Corporate	104,440.4	39,191.8	143,632.2
TOTAL, PARKS CANADA	258,754.9	106,228.7	364,983.6

Source: Best available information provided to the Panel by Parks Canada as of November 15, 1999



Interpretation

Interpretation is another line of activities in which some components are related to ecological integrity. Interpretation is listed under the title "Presentation of Heritage Resources," and includes activities at national historic sites and historic canals as well as national parks. It has been defined by the Agency as follows:

Awareness and Understanding:

- all on-site work done to make visitors to national protected heritage areas aware of the area's importance and role in the Parks Canada system, including displays, publications, and media releases related to creating awareness and understanding but not recreation oriented;
- all off-site work done to enhance appreciation of the national protected heritage system including displays, publications, and media releases, and other electronic media

related to creating awareness and understanding but not recreation oriented;

- all work related to provision of visitor centres such as media, exhibits, and presentations that results in making visitors aware of and understand the national significance of the protected heritage area;
- all work related to the management of volunteer and co-operating association programs.

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Source: Best available information provided to the Panel by Parks Canada as of November 15, 1999



was by using relative staffing levels as a proxy for relative interpretation budgets. For example, we were told that of the 1150 interpretation and outreach staff in the Agency, 394 (one third) are working in the national parks. If overall interpretation expenditures mirror this division, then the national parks interpretation budget is in the area of \$11 to \$12 million, approximately 5 per cent of the total national parks budget.

Given the lack of information on interpretation resources prior to the budget cuts, it is impossible to evaluate whether or not the resources available at that time were adequate to properly meet interpretation objectives, but interpretation resources have been drastically reduced. We suggest, therefore, new investment in national park interpretation of \$10 million. This would nearly double current spending on interpretation in national parks.

Operations and Capital Budgets

These figures represent spending from both the operations and the capital (or special project) budgets. The Panel heard that many staff positions related to ecological integrity, and ongoing ecological integrity initiatives (such as ecological monitoring and database maintenance) are currently funded from project budgets and under the previous departmental status were insecure and competing with other projects on an annual basis. This is confirmed in Figure 13-2, which shows that 44 per cent of expenditures under the Ecosystem Research and Monitoring line are from capital funds. Long term resourcing is essential for the development of research and monitoring programs, whose integrity can be impaired by even temporary loss of funding. The new Parks Agency structure will provide some relief from these vagaries of annual funding.

Spending On Protection Of Heritage Resources in Focus Parks

The Panel also looked for information on spending patterns in the individual focus parks we visited. As mentioned above, the accounting system in Parks Canada made this information surprisingly difficult to obtain for specific parks and for spending explicitly on ecological integrity activities. We decided to use the public business plans of the Field Units for our analysis, as these documents are official, public documents. However, this information is available only at the business line level of Protection of Heritage Resources, and cannot be broken down to separate out the subcategories of ecosystem activities from cultural resource activities.

Figure 13-3 presents the results of our analysis for eight of the parks that the Panel visited. The budget for Gros Morne National Park is missing from the table — the information could not be separated out from that of the Newfoundland West/Labrador Field Unit which includes several large national historic sites.

The proportion of the park budget allocated to Protection of Heritage Resources averages approximately 25 per cent with a low of 13.5 per cent. This is in line with the percentage for the national parks component of the Agency (see above). This average decreases to 19 per cent if Wood Buffalo National Park is excluded.

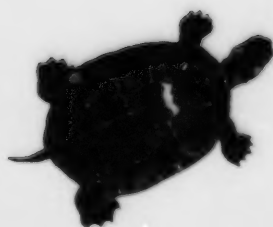


Table 13-3. Focus Park Budget Plans for Protection of Heritage Resources: 1999-2000

(From 1999-2000 Business Plans)

Focus Park	Total Park Budget			Park Budget Devoted to Heritage Resource Protection *						
				(\$ thousands)						
				Salaries	goods & services	capital	emergency & other		TOTAL	
	\$	\$	% Total	\$	% Total	\$	% Total	\$	\$	% Total
St. Lawrence Islands	1465.7	113.8	15.2	57.7	14.8	114.0	34.8	—	285.5	19.5
Fundy	3759.3	276.85	15.1	67.9	8.6	475.35	47.6	—	820.1	21.8
Georgian Bay Islands	2209.6	130.1	18.2	20.0	7.3	150.0	12.3	—	300.1	13.6
Riding Mountain **	5090.3	883.6	30.0	179.1	19.7	513.0	42.4	30.0	1605.7	31.5
La Mauricie ***	2705.3	274.8	18.5	52.2	7.8	150.0	27.3	—	477.0	17.6
Gros Morne ****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Waterton Lakes	3314.7	276.6	17.8	139.9	13.9	165.6	32.2	38.3	620.4	18.7
Wood Buffalo	5299.6	1243.9	55.2	314.9	32.6	726	93.0	1300.0	3584.8	67.6
Pacific Rim	3391.4	378.9	19.9	9.0	1.5	201.4	32.4	8.3	597.6	17.6

Source: Analysis for Panel by Luce Charron, based on Business Plan of the relevant field unit for the period 1999-2002

* The figures are based on the budget indicated as the operating base in the financial framework for the park for the year 1999-2000 and included in the Business Plan for the relevant Field Unit for the period 1999-2000.

** These percentages are the same as those for the field unit as it includes only one national historic site, which is part of the park. The ecosystem secretariat located at Riding Mountain National Park is shared between Manitoba Field Unit (including Wapusk National Park) and Riding Mountain Field Unit.

*** The percentages are calculated based on the budget allocated to both natural and cultural heritage resource protection rather than the budget of the Natural Resource Conservation Unit, which is much higher as it includes several other programs in addition to ecosystem management. The total budget for La Mauricie excludes the District Office.

**** The budget specific to Gros Morne National Parks was not included in the Business Plan of the Newfoundland West/Labrador Field Unit made available for Panel review.

The conspicuous anomaly of Wood Buffalo National Park's high spending on Protection of Heritage Resources (68 per cent of total park budget) illustrates some difficulties with interpreting these numbers. The high level can be explained in some part by the fact that due to its remote location and relatively undeveloped nature, Wood Buffalo has few visitors (approximately 6,000 in 1996) and therefore comparatively little activity for visitor services. The ecosystem management issues in the park are large and chronic (rehabilitation of clearcuts that are as large as Mount Revelstoke National Park, bison disease, hydrology of the Peace-

Athabasca Delta). Furthermore, the huge size of the park (about the same size as Switzerland, Wood Buffalo is the world's second-largest national park) contributes to high costs of basic operations and management of the ecosystem. Almost 25 per cent of the park's 1999/2000 budget is funding for fire management.

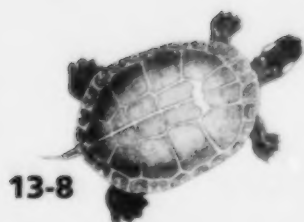


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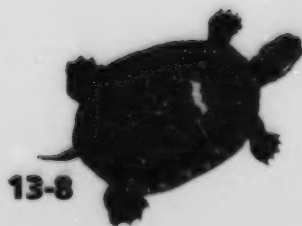
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Prerequisites to Additional Resources for Ecological Integrity

Maintenance of public roads in Wood Buffalo National Park may become a major expense for the park.

L. Foisy/Parks Canada



There are many reasons for the low proportion of funding allocated to ecosystem activities relative to other park responsibilities.

Foremost is the fact that many other budget categories are non-discretionary because they have been predetermined by other decisions or by commitments elsewhere in government. These include agreements reached in park establishment (such as the building of a new visitor centre for Gros Morne National Park) or at a federal-provincial level (such as highway maintenance within national parks). For instance, in Wood Buffalo National Park, a decision by the government of the Northwest Territories to privatize highway maintenance will likely "off load" this expense from the territorial government to the park, causing a \$200,000 annual increase in the park's goods and services requirements — 20 per cent of the park's current budget in this category.

Spending on visitor services such as roads, campgrounds, and stores, is seen as necessary for visitor satisfaction, and this category is currently a large category of spending (27 per cent). This is in part a legacy of the historical perspective on the function of national parks.

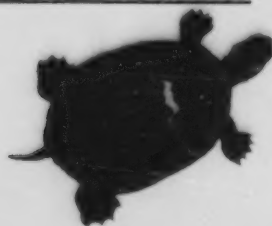
Expenditures on public safety must be undertaken because of liability, and hence accountability. In contrast, accountability for ecological integrity targets is very soft, and expenditures can be delayed or minimized. This can lead to a situation such as in Pacific Rim National Park Reserve, where money is available to maintain physical safety features of the West Coast Trail (such as bridges and ladders), but wardens have difficulty preventing poaching of threatened yew trees within the park's Broken Group Islands unit because there is no money for wardens to purchase gasoline for their boats.

Whatever the reasons, (to use the words of one senior park manager), "funding for ecological integrity is the most discretionary portion of our budget," although ecological integrity is meant to be the priority for managing national parks. When money gets tight, spending on ecological integrity is an early candidate for curtailment.

The pressures for spending in other Parks Canada program areas are intense, particularly in an organization where every dollar is already stretched. The Panel came to the view that without the initial changes in organizational structure, planning, and accountability mechanisms recommended elsewhere in this report, any new money given to the Agency for maintaining and restoring ecological integrity would be very vulnerable to redirection to other program areas.

"Budgets for resource management, including research and monitoring, which were never adequate, have declined in recent years. The decline has been most precipitous in the current fiscal year 1999-2000 in which the overall Capital budget for Heritage Protection (in Jasper National Park) shrunk by 45% and the Science and Resource Management portion of that declined by 76%."

Parks Canada employee, submission to the Panel

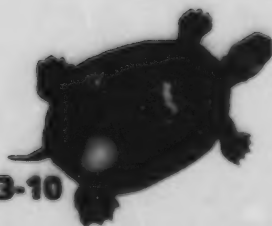


RECOMMENDATION

13-1. We recommend that Parks Canada take the following first steps to implement improved management and accountability for ecological integrity in national parks before the allocation of additional resources to maintain and restore ecological integrity.

The first steps proposed by the Panel have been chosen to be seminal in setting a new direction for Parks Canada at both symbolic and operational levels. These first steps are measures that have been recommended previously in this report:

- reforms to bring science advice and information to the Chief Executive Officer and into the Executive Board through the appointment of a national Director General of Ecological Integrity (Chapters 2 and 4);
- initiation of a participatory process to develop an Agency Charter, which would lay out the core values of the organization as they relate to its primary objective of ecological integrity (Chapter 2);
- development and early implementation of a detailed and ongoing training and orientation program focused on ecological integrity (Chapter 2);
- revisions to planning guidelines to make ecological integrity the core and overarching theme of future Park Management Plans (Chapter 3);
- gazetting the wilderness zones in at least two national parks in order to give them legal designation, and announcing the intention to gazette wilderness zones in all parks within five years (Chapter 3);
- establishing written guidelines for the re-orientation of the external relations (marketing) department from a focus on mass tourism product marketing to a focus on social marketing, policy marketing, and de-marketing with messages focusing on ecological integrity (Chapter 10);
- strengthening systems to enable public transparency on spending of all additional resources in business plans and public estimates, to make readily identifiable the budgets for: ecosystem research, monitoring and management; the Partnerships Fund and expanded partnerships with Aboriginal peoples; and national parks interpretation;
- development of a strategic plan for moving beyond these first steps to address the longer-term issues essential for the re-orientation of the Parks Canada Agency's national parks components toward the ecological integrity objective, including:
 - a detailed budget plan for expenditure of all additional resources given for ecological integrity purposes;
 - specific accountability goals for the ecological integrity mandate, including regional integration at national, Field Unit and individual park levels;
 - initiation of communications with Aboriginal peoples on how to undertake a healing process;
 - a plan to refocus the interpretation and outreach programs on ecological integrity as the primary message, and to widen the audiences for these programs.



A Matching Funds Offer for Private Land Stewardship

The Nature Conservancy of Canada is prepared to propose matching as much as \$20 million per year of federal investment in habitat conservation to conserve Canada's ecological integrity and natural heritage both within and outside of Park ecosystems over the next several years. For each dollar invested by the Government of Canada, NCC, or its partners, would raise one or more dollars from non-federal sources to invest in conservation projects to secure land essential to maintaining integrity in Canada's national parks and conserving the broad range of Canada's biodiversity.

Letter from the Nature Conservancy of Canada to the Panel.

Internal Re-allocations and Savings

A number of the Panel's recommendations are proposals to shift and streamline existing activities, and some activities should be considered core activities for Parks Canada. These recommendations should be funded from within the current budget framework, through internal re-allocations and savings. These include:

- establish and staff the position of Director General of Ecological Integrity in the national office (Recommendation 2-6);

- detailed orientation, training and development program on ecological integrity for all employees (including contract employees, partners and co-operators) (Recommendation 2-4);
- implementation of the substantially revised, streamlined planning process (Recommendation 3-2);
- re-orientation of the external relations (marketing) department (Recommendation 10-7);
- establishing a highly qualified core design/planning group to be responsible for managing capital investments (Recommendation 12-1).

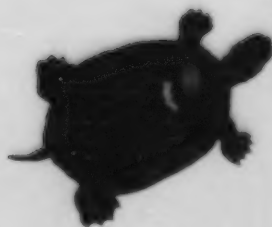
Additional Resources

The Panel heard consistently that the financial resources currently devoted to Parks Canada are insufficient for Parks Canada to meet its objective for protecting ecological integrity, and that the existing pressures on those resources exacerbate the situation even further. Other chapters in this report make recommendations for new programs and expanded capacity. Given what we heard about stretched resources, the Panel came to the view that it would not be reasonable to expect all of these new or expanded programs to be financed from within existing budgets.

Our recommendations are for major new thrusts and initiatives, for operational expenditures only. Not every recommendation in this report has been costed, and funding for new infrastructure expenditures, which will arise from many of the recommendations on ecological design in Chapter 12, are not included. Our recommendations also assume that current funding for ecological integrity activities is kept intact: that new monies proposed are additional to those already being invested.

As noted above, there is also a need to shift certain fundamental activities from insecure project funding to more secure base funding. This applies to ongoing monitoring, research, and data management programs, where an interruption or disruption to the project can negatively affect years of work. It also applies to partnerships, where financial certainty is an essential ingredient for trust and good relations, and to interpretation, which is key to building understanding of the unique role of parks in the country's conservation and sustainability efforts.

Experience has shown that guaranteed, long-term funding envelopes for ecological integrity research can leverage substantial outside matching funds. For example, in Banff National Park a guaranteed funding envelope of \$300,000 a year was leveraged by judicious choice of research projects and researchers into nearly \$1 million a year. Further, innovative approaches seeded by Banff National Park funds, such as the East Slopes Grizzly Project, obtained substantial contributing funds from private industry. The result is a level of ecological knowledge of the Banff region that is unsurpassed in any other park.



The absence of such funding envelopes can also lead to missed opportunities. In Wood Buffalo National Park, we heard that the Little Red River Cree Nation had offered \$250,000 to the Bison Research and Containment Program on a matching basis, but this opportunity for research and partnership will be missed because Parks Canada cannot match the funds.

The Panel also heard that a properly designed fund in support of habitat conservation initiatives that would help to maintain the ecological integrity of national parks, undertaken in partnership with private organizations, could leverage significant private contributions.

We also observed and heard that while allocating funding for the maintenance of ecological integrity was exceptionally difficult, allocating funding for active management and restoration activities was even more so. Park staff reported that funding to support restoration such as prescribed burns, species re-introduction, site rehabilitation and

other activities was exceedingly difficult to obtain. We noted that there was limited recognition that, in the long run, an investment in restoration would be needed to achieve the ecological integrity objectives, and that in some instances, the longer such restoration was left un-addressed, the higher the costs of restoration

Other new activities should also be funded through initiatives underway elsewhere in government, not from existing Parks Canada resources nor from the additional resources recommended in this report. Funding for managing species at risk, for which Parks Canada can play a key role but does not have the current capacity to take on, should come from the funding that will be allocated to Species at Risk management. Funding for healing conferences and initiatives with Aboriginal peoples should be funded through the Healing Fund established under the government's Gathering Strength initiative.

RECOMMENDATIONS

13-2. We recommend that the Minister seek additional resources to implement the recommendations of the Panel as follows (see Figure 13-4 for specific dollar amounts):

- to upgrade the internal knowledge capacity of Parks Canada, and enable co-operation with external science programs (Chapter 4) as follows:
 - increase internal capacity in the natural and social sciences and in planning.
 - fund education leaves to upgrade the knowledge of existing staff.

- funding support for external researchers through 10 co-operative study units and student internship programs in each park.
- a Conservation Data Centre Partnership.
- an emerging issues research envelope.

- to supplement and expand active management programs (Chapter 5) as follows:

- a dedicated site restoration envelope to ensure there are funds available and that restoration is not directly competing with other immediate priority issues.



- to supplement the existing fire restoration program so that fire can be restored to 50 per cent of its long term average.
- to supplement and stabilize ongoing funding for ecological monitoring activities (Chapter 6) as follows:
 - an ecological integrity monitoring envelope.
 - atmospheric monitoring in co-operation with the Atmospheric Environment Branch of Environment Canada.
- to improve relations between Aboriginal peoples and Parks Canada (Chapter 7):
 - for liaison officers and activities in aboriginal communities and in Parks Canada.
- to contribute to partnerships that will support the ability to maintain the ecological of national parks:
 - for a Partnership Fund to be applied to a broad range of co-operative agreements with respect to maintaining the ecological integrity of national parks and other national conservation areas (Chapter 9).
- to approximately double Parks Canada's budget for presentation of heritage resources (interpretation and outreach) by the national parks in order to expand national park interpretation programs to strategic new audiences, new media, and educational institutions, and with a greater focus on ecological integrity (Chapter 10):
 - work in collaboration with tourism operators and other groups to make ecological integrity messages available to people planning trips to national parks.
 - develop interpretation programs aimed at specific strategic audiences such as park community residents, national park staff, politicians and decision-makers in various levels of government, regional communities, youth and educators, and the private sector.
 - develop outreach programs to bring parks to people, especially in urban areas.
 - develop means to involve Aboriginal people in interpretation and outreach programs.

13-3. We recommend that the Minister of Canadian Heritage support proposals currently being made to the Minister of Finance by environmental non-governmental organizations to change the Income Tax Act to exempt ecological gifts from capital gains tax and allow for the part sale/part donation of land (Chapter 9).



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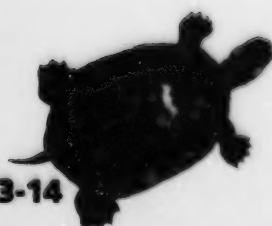
Figure 13-4. New investments needed by priority area 2001-2005

(Millions)	Phase in period (years)	2001	2002	2003	2004	2005	Total
Science & Planning							
Internal capacity - natural & social sciences, planning, EA specialists, data/GIS managers	4	10.0	18.0	24.0	28.0	28.05	108.0
Staff education leave program	3	0.7	1.3	2.0	2.0	2.0	8.0
Support external research	3	1.3	2.7	3.5	3.5	3.5	14.5
Conservation Data Centre Partnership	1	0.54	0.54	0.54	0.54	0.54	2.5
Emerging issues research fund	4	0.4	0.6	0.8	1.0	1.0	3.8
Subtotal		12.9	23.1	30.8	35.0	35.0	136.8
Active Management							
Site restoration fund	3	1.0	3.0	5.0	5.0	5.0	19.0
Expand fire restoration	5	1.2	2.4	3.6	4.8	6.0	18.0
Fund management of Species at Risk from SARA resources							
Subtotal		2.24	5.4	8.6	9.8	11.0	37.0
Monitoring							
Ecological integrity monitoring	5	0.8	1.6	2.4	3.2	3.9	11.7
Atmospheric monitoring (50% PCA, 50% AES)	1	1.2	0.6	0.6	0.6	0.6	3.6
Subtotal		2.0	2.2	3.0	3.8	4.5	15.5
Aboriginal Peoples							
Liaison between Aboriginal peoples and Agency	3	1.0	3.0	5.0	5.0	5.0	19.0
Fund healing conferences & initiatives through Gathering Strength Healing Fund resources							
Subtotal		1.0	3.0	5.0	5.0	5.0	19.0
Regional Integration Partnerships							
Stewardship initiatives in greater park ecosystems	3	10.0	15.0	20.0	20.0	20.0	85.0
Interpretation							
Double national park interpretation budget	4	2.5	5.0	7.5	10.0	10.0	35.0
TOTAL		30.6	53.7	74.9	83.6	85.5	328.3



Figure 13-4. New Investments needed by priority area 2001-2005

	Phase In period years	2001	2002	2003	2004	2005	Total
(\$millions)							
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Internal capacity - natural & social sciences, planning, EA specialists, data/GIS managers	4	10.0	18.0	24.0	28.0	28.05	108.0
Staff education leave program	3	0.7	1.3	2.0	2.0	2.0	8.0
Support external research	3	1.3	2.7	3.5	3.5	3.5	14.0
Conservation Data Centre Partnership	1	0.54	0.54	0.54	0.54	0.54	2.5
Emerging issues research fund	4	0.4	0.6	0.8	1.0	1.0	3.8
		12.9		30.8		35.0	
Active Management							
Site restoration fund	3	1.0	3.0	5.0	5.0	5.0	19.0
Expand fire restoration	3	1.2	3.4	3.6	4.8	6.0	18.0
Fund management of Species at Risk from SARA resources							
		2.24		8.6		11.0	
Monitoring							
Ecological integrity monitoring	5	0.8	1.6	2.4	3.2	3.9	11.7
Atmospheric monitoring (50% PCA, 50% AES)	1	1.2	0.6	0.6	0.6	0.6	3.6
		2.0		3.0		4.5	
Aboriginal Peoples							
Liaison between Aboriginal peoples and Agency	3	1.0	3.0	5.0	5.0	5.0	19.0
Fund healing conferences & initiatives through Gathering Strength Healing Fund resources							
		1.0		5.0		5.0	
Regional Integration Partnerships							
Stewardship initiatives in greater park ecosystems	3	10.0	15.0	20.0	20.0	20.0	85.0
Interpretation							
Double national park interpretation budget	4	2.5	5.0	7.5	10.0	10.0	35.0
TOTAL		30.6	52.7	74.9	83.6	85.5	327.3



Wildlife should be considered
as park "assets."
W. Lynch/Parks Canada



Additional Resources for New Parks

Funding for new parks currently includes funding for establishment agreements, but does not include funding for the subsequent operations of these parks. For the last three years, operating funds for new parks and marine conservation areas have come from the appropriations freed up under the revenue policy. This has led to a situation in which the creation of new parks risks affecting the ability to meet commitments to protect the ecological condition of existing parks.

There are 14 terrestrial natural regions throughout Canada still requiring national park representation, and an entire system of marine conservation areas yet to be established. These cannot all be funded from current operational funds. Clearly, it will not be sustainable to continue to fund new parks from within Parks Canada's current budget, and new resources will be required to develop and operate these new parks and conservation areas.



RECOMMENDATION

13-4. We recommend that funding for new park establishment should include:

- an associated increase in base appropriations for subsequent park operations;
- the costs of developing an adequate ecological inventory. As a general rule, the cost of a basic inventory are estimated to be \$250,000 per

park on average. This is over and above any other inventories such as the Mineral and Energy Resources Assessment process in the northern territories. There are currently 14 un-represented regions and five northern parks with inadequate basic inventories. The total cost to complete a basic inventory of a completed national park system would be approximately \$5 million.

Allocation of Project Funds

"In the US, the Henry P. Kendall Foundation, the National Parks and Conservation Association and the US Parks Service are engaged in a voluntary and innovative Business Plan partnership. Over the past several years, 8 national parks (eg. Yellowstone) have opened up their books to an intensive review of how they might better spend their dollars to meet the EI [ecological integrity] goals. This is being supported by some top Ivy League colleges that are engaging Ph.D. economic students in this exercise. A similar approach could be taken here in Canada."

conservation organization, submission to the Panel

The recommendations above are intended to transfer much of the funding for essential activities relating to ecological integrity to Parks Canada's base funding, in order to provide

a security of long-term funding that is consistent with the mandate of national parks. There will, nonetheless, continue to be a need for special project funding. This section addresses issues related to creating a level playing field for this funding.

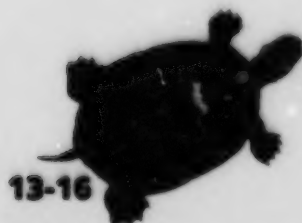
Determining the financial resources needed to replace or upgrade existing infrastructure for park communities and park arrival areas is beyond the Panel's capability. These capital assets include

sewage treatment, water, energy systems and related infrastructure, and have both direct and indirect effects on ecological integrity.

When project funding is sought for ecological integrity projects such as research, active management, and restoration, it "competes" in the same category of funding as physical infrastructure projects (campgrounds, roads, visitor centers and so on). We heard repeatedly that proposals for maintaining declining natural features (species, ecosystems, ecosystem functions) cannot compete against proposals for physical infrastructure, which are often driven by engineering or safety standards. We also heard that the benefits of investments in science and active management are not always well understood by managers.

"Unlike other areas within the Agency's programs, the implications of under funding of ecologically based programs do not readily manifest themselves, making them an easy target for reduction or deferral."

Service Centre, submission to the Panel



We saw this imbalance in practice in several instances where infrastructure for visitors has been built in the name of protecting ecological integrity, although neither basic ecological inventories nor ecological monitoring existed. In such situations, facilities such as trails and trail infrastructure have been prioritized as ecological

projects although the status of the specific site and its capability to handle visitor use or sensitivity to visitor use was unknown. Although such issues should be picked up through the environmental assessment process, this process is not always as thorough as it could be, as discussed in Chapter 12.

RECOMMENDATIONS

13-5. We recommend that Parks Canada divide project funds using an "envelope" system of fiscal management with one of these envelopes being for activities related to ecosystem research, monitoring, and management at both national and regional levels, and one envelope for projects under other program areas.

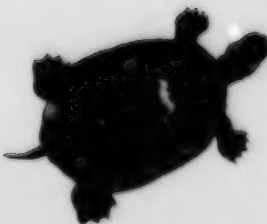
13-6. We recommend that Parks Canada initiate, within two years, an investigation of the infrastructure of each national park, to determine the capital funding required with respect to:

- current conditions of infrastructure facilities in relation to their impacts on ecological integrity and the need for replacement and/or upgrading;
- determination of appropriate design for environmentally sustainable technologies to meet ecological integrity objectives;
- a phased implementation program and identification of priority sites.

The Need to Account for all Assets

The natural features of national parks (species, ecosystems, and ecosystem functions) are what the people of Canada have entrusted to Parks Canada to maintain unimpaired for the enjoyment of future generations. However, these features were entirely omitted from a recent review of Parks Canada's assets, initiated and defined by the federal Treasury Board. This would be similar to making an asset list for the National Gallery that omitted its painting collection. Another form of asset left out from the recent review was the value of knowledge assets that are embodied in resources such as databases, libraries, photo collections, specimen collections and long-established monitoring programs.

The Panel is of the view that the current definition of "asset" is incomplete, given the nature of Parks Canada's obligations. While the methodologies for accounting for natural assets are still being developed, parks, with their distinctive mandate for the maintenance of ecological integrity, provide a perfect match between need and opportunity for piloting the application of these methods. Some work has already been done in Gros Morne National Park (Locke, 1997).



RECOMMENDATION

13-7. In keeping with the public trust to protect, conserve and interpret Canada's natural heritage, and to contribute towards the protection of global biodiversity as established in the Parks Canada Agency Act, we recommend that Parks Canada undertake pilot projects to adopt a revised definition of assets that would include the following elements:

- the condition of the natural assets (natural resources) as indicated from park-level monitoring reports (State of Park Reports) and the costs associated with restoration and maintenance of these assets;
- knowledge assets such as data (inventory, monitoring, research), metadata, libraries, photo collections, specimen collections (including the value added from having a multi-year data base).

The Revenue Policy

The fundamental principle guiding Parks Canada's revenue policy is that tax dollars pay for the cost of establishing and protecting national parks and national historic sites; those who use them, will pay for the additional personal or commercial benefits that they receive. Services providing both a public good and personal benefit, such as heritage presentation programs in parks and sites, will be financed through a combination of tax-based appropriations and fees.

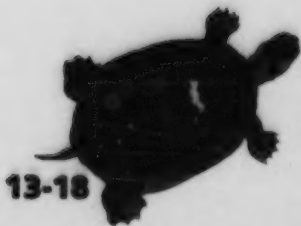
Parks Canada Revenue Policy (1998)

The Parks Canada revenue policy means that most national parks are involved in revenue generation — that is, in charging fees for various products and services of both personal and commercial benefit.

Revenue generation plans and targets are developed on an annual basis by each Field Unit and approved by the Executive Board as part of the annual Business Plan approval process. The proportion of individual park budgets that these targets represent varies considerably, related to the types of services of a personal or commercial benefit existing in the park, and the visitor volume. For instance, in Jasper and Banff national parks, the revenue generated is equivalent to almost 100 per cent of the park's total (operating and project) budget. By contrast, in Gwaii Haanas the revenue generated is approximately 2 per cent of the park's total budget.

Field Units retain all revenue they generate, up to the level of their total expenditure authority. If a Field Unit's revenue target exceeds this authority (in a few parks, there are also significant lease and concession revenue in addition to park use fees), the excess amount is re-allocated by the Executive Board.

Where a revenue target is not met, Field Units are required to reduce their expenditures by an equivalent amount. Field Units may apply to the Executive



Board for relief from this requirement due to extraordinary circumstances (such as the closure of a campground due to flooding).

Parks Canada's Revenue Policy states that:

...initiatives will respect Parks Canada's mandate and its three key accountabilities by:

a. ensuring the long-term sustainability and the commemorative and ecological integrity of natural and cultural resources

b. being consistent with the market demand for client services; and

c. delivering services in a cost efficient manner.

Parks Canada Revenue Policy (1998)

The Parks Canada Agency as a whole plans to raise approximately \$73 million a year in revenue in the forthcoming years (1999-2000 Estimates, Parks Canada Agency). This estimate is for revenue generated from activities of personal benefit (for example through entrance fees and recreational fees) and commercial benefit (such as concessions).

The Revenue Policy and Ecological Integrity

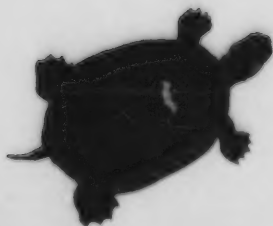
Since its introduction, the revenue policy has been subject to much debate. The Panel's review of the application of the policy focused on specific ways that it might affect ecological integrity, not on the rationale for the policy itself. Our observations fall into two categories: concern about whether pressure to meet revenue generation targets in some parks is driving activities or levels of activities that could be

detrimental to ecological integrity; and some failures in application of the full-cost recovery policy for certain services of a private or commercial benefit.

Most managers reported that meeting revenue targets was realistic and reasonable. They set this target themselves on an annual basis at the Field Unit level. Based on federal Treasury Board guidelines, revenue must be re-invested in the related activities and services. Making such activities that are of a personal or commercial benefit fully or partially self-financing then frees up core appropriations for projects and programs that might otherwise be cut or not be funded. In recent years for instance, this has included funding for expansion of the national parks system.

However, the Panel also heard repeatedly from park staff who are concerned that revenue generation activities in some parks are driving activities or levels of activities that are in conflict with the maintenance of ecological integrity. Whether or not this pressure is real or is merely a perception based on misunderstanding of the revenue policy, the concern is nonetheless whether it is causing ecological integrity to be eroded. An example is the renewal of the lease on a golf course despite evidence in the State of the Parks 1997 Report that golf courses can have negative ecological impacts (Chapter 11).

Scientists expressed concern that the need to fund activities which generate revenue (such as keeping campgrounds in operation or expanding them) may run counter to what protection might



Some golf courses inside
national parks are actually
subsidized by the park.
Blackbird Design

dictate, and that such funds (campgrounds are not fully cost recovered) could more appropriately be used for protection purposes.

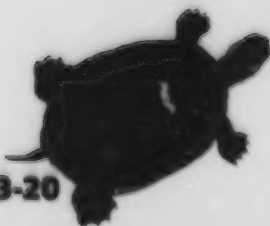
Because revenue has become a substantial portion of the funds for the cash-strapped Parks Canada Agency, managers feel a moral obligation to achieve targets or otherwise deprive themselves and their colleagues of needed revenue. It seems difficult for some senior managers to make decisions that would benefit the maintenance or restoration of ecological integrity but could negatively affect revenue targets. These types of concerns would be allayed by a better appreciation of modern techniques for full resource valuation (Stanley, 1997) and the use of economic incentives for conservation.

This experience is by no means universal, however. A number of recent decisions have been taken, particularly in the mountain parks, that will result in loss of revenue — sometimes a substantial loss. Banff National Park's decisions to implement the Banff Bow Valley Task Force's recommendations to prohibit expansions of the Rimrock

Hotel, to prohibit construction of new hostels, and to prohibit the development of new day-use areas are high profile examples. Elsewhere, Waterton Lakes National Park has closed the camping sites on the Crypt Lake Trail to reduce bear/human conflicts, and Pacific Rim National Park Reserve has introduced a quota system on the West Coast Trail.

We presume that this tension is more significant in parks that have a harder time meeting revenue targets, even though these targets are self-established. This challenge is also undoubtedly compounded because where revenue targets are not met, Field Units are required to reduce their expenditures; whereas there is no such direct repercussion or accountability for missing ecological integrity targets.

The Treasury Board requirement to re-invest user fees into the activities or services that generated them may also have negative impacts on ecological integrity. This requirement arises from a court decision that to do otherwise would be a form of indirect taxation.



The Panel heard that the re-investment of these revenue dollars in the activity or service from which they were generated may have compounding impacts on ecological integrity. For services such as campgrounds or the West Coast Trail, this policy means that visitor infrastructure is incrementally improved and possibly expanded with the potential for undesirable cumulative impacts.

However, we also saw examples of recreation services and facilities where, due to the absence of full-cost accounting or standard business approaches, the official policy of full cost recovery for such services was not yet being met. The absence of full cost accounting gives the impression that some activities are being run as major sources of revenue, whereas they are in fact being subsidized from core operating funds. This subsidy diverts funds from potential use for ecological integrity programs.

One such example is a golf course in a national park with green fees below the fees charged for golf courses outside the park, reflecting the hidden subsidies of grass cutting and other services done by the park. Other examples include spending on new recreation infrastructure for which the annual return on investment is less than standard business practice. A third example is warden time spent in checking compliance with self-registration at campgrounds and parking lots, and in search and rescue services for individuals involved in activities of a personal benefit (such as backcountry travel). While some of these activities are linked to park establishment agreements and therefore need to be maintained, they should nonetheless be operated on a full cost recovery basis, as per the policy.

RECOMMENDATIONS

13-8. We recommend that Parks Canada require Field Units to include a specific examination of the implications of revenue forecasting and targets on maintenance and restoration of ecological integrity in their Implementation (Business) Plans.

13-9. We recommend that Parks Canada enable management decisions in support of ecological integrity to be separated from revenue implications and

to accomplish this through clarifying and publicizing that the need to protect ecological integrity is included in the revenue policy interpretation of "extraordinary circumstances" under which relief from revenue targets can be obtained.

13-10. We recommend that Parks Canada establish a consistent set of rules to be used in full cost accounting for all projects or activities with full cost recovery objectives.



IN CLOSING: GUARDING THE NATIONAL INTEREST



The ecological integrity of Canada's national parks must be unimpaired for future generations of all species, not just humans. W. Lynch/Parks Canada

Unimpaired for Future Generations

Since 1885, Canadians have set aside special places to create a national park system that is the envy of the world. Today, Parks Canada is charged with protecting ecological integrity as the first priority of national parks. By the end of 1999, Canada's national park system contained 39 national parks. More national parks are yet to be created, and the completion of a system that represents Canada's natural regions must be a high priority.

Canadians are awakening to the fact that national parks alone cannot protect and preserve ecological integrity. We deliberately chose a title for our report — *Conserving Ecological Integrity With Canada's National Parks* — to reflect the idea that Canada conserves ecological integrity, not in, but with national parks — using national parks as one element in a tool kit that includes many other kinds of protected areas. Collectively, national, provincial and territorial parks, First Nations lands, marine protected areas, conservation areas and many other types of protected areas must work together as connected patches in a quilt of sustainable land management, with national parks as the heart, the centre of the quilt.





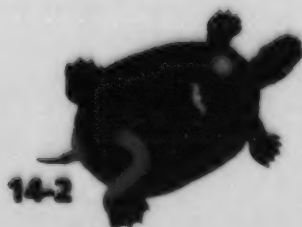
Tanquary Fjord and the Osborne Mountains within Canada's most northerly national park, Quttinipaaq. I. MacNeil/Parks Canada


Canadians have asked too much of their national parks and given back too little. National parks are bellwethers of the broader ecological change that is happening throughout the country and the world. Threats come from within the parks — pressures from visitor use, infrastructure and development, and management decisions that suppress natural processes such as fire. Larger threats originate outside the parks — encroachment of urban and industrial development, pollution, climate change, decisions and actions affecting wildlife populations, clean

air and water. Threats are even embedded within Parks Canada itself — the lack of a conservation culture, insufficient science capacity, ineffectual planning processes, a lack of funding and resources, and the disappearance of interpretation programs. These have all contributed to the decline of the ecological integrity of Canada's national parks.

Maintenance and restoration of ecological integrity in national parks requires bold action within Parks Canada and from all Canadians. Collective action becomes the thread that binds the quilt of protected areas together. To sustain these protected areas Canadians must work beyond core areas, to understand that maintaining the health of these core protected areas is central to maintaining the health — spiritual, emotional and economic — of the entire nation.

The ecological integrity of national parks can only be achieved in a co-operative effort. All Canadians must accept responsibility to work with and encourage federal, provincial, territorial, Aboriginal, and municipal governments, communities, organizations, employers, industries and landowners to actively work to conserve national parks for future generations.





Sage grouse in Grasslands National Park; national parks should be places where timeless natural patterns continue unhindered
W. Lynch/Parks Canada

The Way Forward

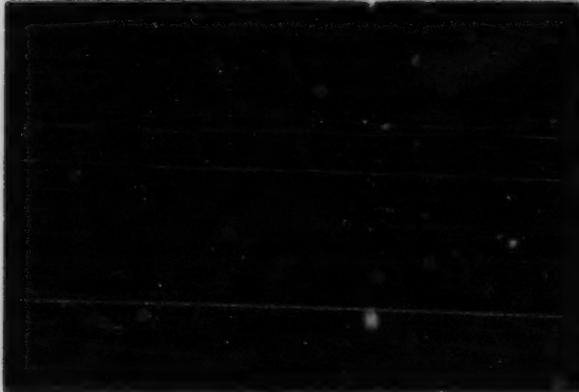
While all Canadians have roles and responsibilities in ensuring that national parks continue to hold their significant places in the Canadian landscape and in Canadians' hearts, the Panel looks to Parks Canada for leadership. Initiatives and actions large and small, at every level of the organization, will be needed, encompassed by three broad principles:

- ensure that protecting ecological integrity is the first priority in all actions and thoughts of national parks;
- improve knowledge and understanding of ecological integrity, including the incorporation of naturalized knowledge;
- communicate the need to protect ecological integrity.

The way forward presents a significant opportunity for Parks Canada to reposition itself to reflect the primary goal of the organization in every facet of its operation. This evolution is not the task of just one person or level of the organization — rather it requires all employees to work together. The Panel believes that Parks Canada can build upon the personal commitment that is so evident in so many employees.



Initial Steps on the Path



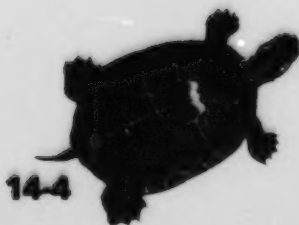
Marine life in Pacific Rim
National Park Reserve; all spe-
cies have intrinsic value
Parks Canada

Ecological systems are complex almost beyond comprehension. The Panel would be naïve to think that the solution to the ecological crisis in Canada's national parks proposed in this report will be all that is needed. The course of action and results must be monitored, evaluated and adjusted along the way. In short, Parks Canada must engage in active and adaptive learning about how to maintain and restore ecological integrity.

To achieve the vision and goals we have set out in this report is a task that must commence immediately but will take a number of years to fully implement. The Panel proposes that the following recommendations receive priority for immediate action while a more complete strategy for implementation is developed (recommendation numbers are in parentheses):

The Panel on ecological integrity in Canada's National Parks recommends that:

- Parks Canada revise and streamline its planning system to focus on ecological integrity as the core of strategic and operational plans. (3-3)
- The Minister direct Parks Canada to take immediate action to convert existing wilderness zones in national parks into legally designated wilderness, as provided by the National Parks Act. (3-11)
- Parks Canada significantly enhance capacity in natural and social sciences, planning and interpretation, to effectively manage for, and educate society about, ecological integrity in national parks. Develop partnerships with universities, industries, Aboriginal peoples, and other learning-based agencies. (4-1, 4-3, 4-4, 4-6)
- Parks Canada undertake active management where there are reasonable grounds that maintenance or restoration of ecological integrity will be compromised without it. Key actions are required in the areas of site restoration, fire restoration, species management and harvest. (5-1, 5-2, 5-3, 5-4, 5-8)
- Parks Canada initiate a process of healing with Aboriginal peoples. Adopt clear policies to encourage and support the development of genuine partnerships with Aboriginal peoples in Canada. (7-1, 7-2)
- Parks Canada develop partnerships that encourage the conservation of parks as part of larger regional ecosystems. Seek provincial and territorial co-operation to establish a comprehensive protected areas
- Parks Canada transform itself, by confirming ecological integrity as the priority for Canada's national parks and as the explicit responsibility of every staff member through new training, staffing, decision-making and accountability structures. (2-1, 2-4)



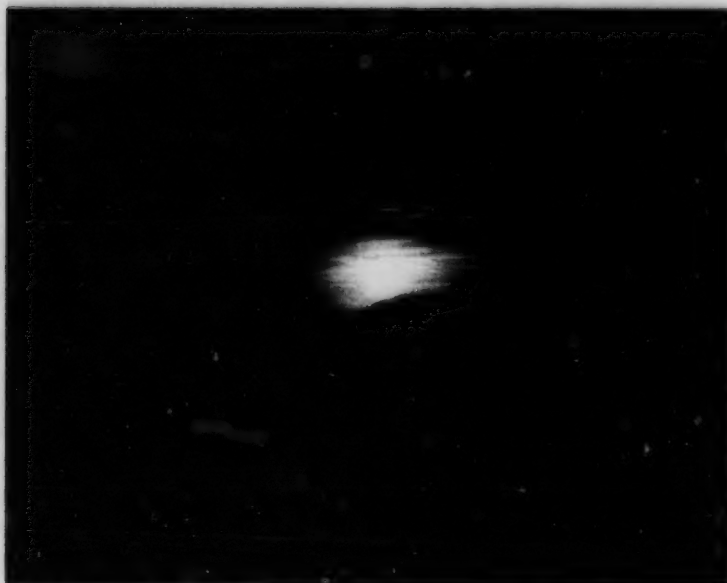
"My choice for an indicator of ecological integrity in National parks is that parks will have ecological integrity when grizzly bears die of old age, instead of being shot or removed as a result of conflicts with people."

Dr. Stephen Herrero
Acceptance speech, J.B.
Harkin Award
Ottawa, 1999

network. Work with other jurisdictions, industry and the public to find solutions on maintaining ecological integrity. Support these solutions with a fund dedicated to conservation efforts in the greater park ecosystems. Advocate for park values and interests in the greater ecosystems. (8-1, 9-1, 9-3, 9-6, 2-9)

- Parks Canada develop an interpretation strategy that presents clear and consistent messages about ecological integrity. (10-1)
- Parks Canada cease product marketing to increase overall use of parks and concentrate instead on social marketing and demarketing where appropriate. (10-7)
- Parks Canada develop a policy and implement a program for assessing allowable and appropriate activities in national parks, with ecological integrity as the determining factor. (11-1)

- Parks Canada reduce the human footprint on national parks so that parks become models and showcases of environmental design and management. (12-4)
- Following the taking of first steps to improve the broader management framework for ecological integrity within Parks Canada, allocate substantial new and additional resources to implement the Panel's recommendations on improving science and planning capacity, active management, monitoring, partnerships with Aboriginal peoples, stewardship initiatives in greater park ecosystems, and interpretation. Fund the establishment and operation of new parks from new resources. Enable management decisions in support of ecological integrity to be separated from revenue implications. (13-1, 13-2, 13-4, 13-9)



Terra Nova National Park
G. Taylor/Parks Canada

Signs of Success

Nations all over the world face threats to their own sacred places. Fortunately for Canada, Parks Canada has both the opportunity and the potential to achieve its mandate through the protection of ecological integrity in Canada's national parks.

Canada is a wealthy country. This country has an enormous land base and a rich and diverse tapestry of cultures. Canadians are resourceful, innovative and take pride in being thoughtful and careful. Above all, Canadians hold the idea of wild places in high esteem. If Canadians cannot undertake the task of integrating various demands for development while protecting the ecological integrity of wild places, who in the world can?



Appendices



Appendix A: Methods – How the Panel Worked

In 1998, the Minister of Canadian Heritage, the Honourable Sheila Copps, asked a panel of Canadians with expertise in ecological sciences and related fields, *"to assess the strengths and weaknesses of Parks Canada's approach to the maintenance of ecological integrity in Canada's national parks and, based on this assessment, provide advice and recommend how best to ensure that ecological integrity is maintained across the system of Canadian National Parks."*

The Panel was asked to focus on the following areas:

- Programs – review existing programs' approaches in planning, organization, management and control of inventorying, development, protection, restoration and monitoring of national parks' ecosystems.
- Technology – review available technologies (remote sensing, databases, geographic information systems, and ecological and statistical models) for possible application within national parks.
- Partnerships – ensure that individual parks are integrated within their regional ecosystems in such a way that ecological integrity can be maintained, both inside and outside of parks, over the long term. The Panel reviewed Parks Canada's capability in ecosystem-based management, with the goal of enhancing relationships with adjacent land management agencies, stakeholders, First Nations and universities.
- Level of Investment – review priorities in investment in personnel, science, technology and communications.
- Integration – review Parks Canada's decision-making processes and management tools (planning processes, Park Management Plans, Conservation Plans, Business Plans, and so on) to integrate the management of national parks into their regional environment while ensuring the maintenance of their ecological integrity. Review how Parks Canada can draw on the naturalized knowledge of Aboriginal peoples and integrate this knowledge in the management of park ecosystems.
- Awareness – determine what improvements are needed in interpretation and outreach programs to promote increased knowledge and better understanding of the role of the national parks and the concept of safeguarding ecological integrity.

Within the allotted time frame of one year, the Panel used a sampling approach to understand the issues relevant to ecological integrity and national parks. We visited a total of nine focus parks and held regional workshops in eight cities (Figure 1-1). The focus parks were scattered across Canada and represented the range of sizes, levels of ecological impairment, visitation patterns and management complexity. In the regional workshops, we had presentations from the other parks in the region. In each place we heard from a wide range of people: park staff, local residents, researchers, stakeholder groups, non-governmental organizations, First Nations, federal, provincial, and municipal government organizations and citizens.

In addition to the specific presentations and discussion formats outlined above, the Panel invited an open submission of short briefs from the public at large. In total we had 286 presentations from park employees and 318 presentations from other interested groups and individuals. The Panel received 60 written briefs and held individual meetings with a total of 82 organizations, including First Nations, government departments and national and regional non-government organizations. Individual Panel members also met with park and non-park staff during the research and writing of this report. As Panel Chair Jacques Gérin put it, the Panel was open 24 hours a day.

Organization of the Panel and Secretariat

The Panel comprises 11 independent professionals led by the Chair, reporting to the Minister of Canadian Heritage, the Honourable Sheila Copps. There were also two special advisors to the Panel. Panel members were selected for their background understanding of natural and social sciences as these apply to managing protected areas, and their understanding of Parks Canada's mandate.

The Ecological Integrity Panel members:

Jacques Gérin, Chair

Pamela Wright, Vice-chair

Louis Bélanger

Stephanie Cairns

Luise Hermanutz

Michael Hough

F. Henry Lickers

Thomas D. Nudds

Juri Peepre

Paul F. Wilkinson

Stephen Woodley

Special Advisors:

John Dennis,

United States National Park Service

Harold Eidsvik

International Advisor

The Panel was assisted by a professional secretariat of Parks Canada staff seconded to the Panel for the duration of the project. In addition to co-ordination, the Secretariat provided administrative, professional, technical and research support to the Panel.

Secretariat members:

Alain Dufresne, Executive Secretary
Louise Blais, Administrative Assistant
Judith Froome, Communications
Luc Foisy, Eastern Co-ordinator
Paul Tarleton, Western Co-ordinator



The Panel on the Ecological Integrity of Canada's National Parks, Advisors and Secretariat

Back Row: Stephanie Cairns, Juri Peepre, Pamela Wright; Second Row: Tom Nudds, Judith Froome, Stephen Woodley; Third Row: Luc Foisy, Jacques Gérin, Alain Dufresne; Fourth Row: Paul Wilkinson, John Dennis, Henry Lickers; Fifth Row: Harold Eidsvik, Louis Bélanger, Michael Hough, Paul Tarleton; Bottom Row: Luise Hermanutz, Louise Blais

Biographies

Panel Members

Jacques Gérin – Chair

Jacques Gérin is a civil engineer with a Master's degree in regional planning. He is currently a consultant on Environment and Sustainable Development at Hatch and Associates, a Canadian consulting firm.

He served in the government of Canada as Vice President of the Canadian International Development Agency (CIDA), Secretary to the Cabinet Committee on Priorities and Planning, Deputy Minister of the Environment and Deputy Minister of Northern Affairs.

He is Chair of the Board of the International Institute for Sustainable Development (IISD), a Governor of the International Development Research Centre (IDRC) and a former member of the Advisory Committee to the North American Commission for Environmental Co-operation. He was the 1997 recipient of the Air and Waste Management Association's Richard Beatty Mellon Award.

Pamela Wright – Vice-chair

Dr. Wright holds undergraduate degrees from Lakehead University in Ontario and a MSc. and Ph.D. in the School of Natural Resources of the Ohio State University. Dr. Wright served as Assistant Professor in the graduate School of Resource and Environmental Management at Simon Fraser University in Burnaby, B.C., specializing in protected areas research and management. More recently Dr. Wright served as the director of a university field school in coastal B.C. Dr. Wright is principal of Confluence Resource and Environmental Management, a research and planning consultant working on a range of resource and environmental issues.

Dr. Wright studies and teaches about protected areas and sustainable forestry within an ecosystem-based management approach. She has been trained in both the ecological and social sciences. Dr. Wright is currently working on a multi-year project with the U.S. Forest Service on establishing a system-wide monitoring program for sustainable forest management. She continues to serve as an adjunct faculty member at Simon Fraser University.

Louis Bélanger

Louis Bélanger is a professor at Université Laval's Faculté de foresterie et de géomatique in Québec City, from which he holds a Ph.D. in Forest Management and Silviculture. He teaches sustainable forestry and applied ecology. He is chair of the Forêt Montmorency research forest and vice-president of the Waswanipi Cree Model Forest. He is active in the Union québécoise pour la conservation de la nature.

His research activities deal primarily with the development of sustainable management strategies for Québec's major forests. In co-operation with the provincial departments responsible for forests, wildlife and the environment, these projects aim to develop forest practices that are socially acceptable and ecologically viable.

Dr. Bélanger has participated for many years in Parks Canada's ecosystem conservation program in Forillon and La Mauricie national parks. His interests include the integration of such protected areas within landscapes dedicated to forest management. He has undertaken with his graduate students studies on the parks' primitive forests and their present level of alteration.

Stephanie Cairns

Stephanie Cairns has a B.A. in environmental policy from the University of Toronto and an M.Sc. in pollution prevention and corporate environmental management from the International Institute for Industrial Environmental Economics at Lund University in Sweden. She works as an Associate with the environmental policy consulting firm Resource Futures International (RFI), and as an Associate with the Pembina Institute, a national non-governmental organization specializing in energy and climate change issues.

Ms. Cairns has been advancing environmental issues in the non-governmental, political, and private sectors for over 15 years. She has been the senior manager of several national and international environmental groups, including the Canadian Environmental Network and the Friends of the Earth International.

Network. She has also been deeply involved in the policy development and production for the two federal Liberal election platform "Red Books," first in the early 1990s as the environmental analyst for the federal Liberal Caucus, and in 1996/97 as the advisor on strategic planning in the Policy Section of the Prime Minister's Office.

Luise Hermanutz

Dr. Hermanutz holds a Ph.D. in Plant Ecology from the University of Western Ontario and is presently on the faculty of the Biology Department of Memorial University where she teaches Boreal Ecology, Community Ecology and Conservation Biology. She has been a Visiting Fellow at the Department of Biological Sciences, University of Wollongong, Australia.

Dr. Hermanutz is interested in population processes of native and non-native plant species which affect their long-term viability and persistence. Together with her students, she is investigating how non-native species may compromise the ecological integrity of natural communities in Terra Nova and Gros Morne national parks; how disturbances and herbivores affect the biodiversity in Terra Nova National Park; and the population consequences of pathogen-plant interactions in arctic-alpine plants in protected areas throughout insular Newfoundland. She is the co-chair of the Recovery Team of an endangered plant species (*Braya longii*) and a member of the scientific advisory boards of the Atlantic Canada Conservation Data Centre and the Newfoundland Rare Plant Project.

Michael Hough

Michael Hough is a Professor at the Faculty of Environmental Studies at York University and is a principal and founding partner in the landscape architecture firm of Hough Woodland Naylor Dance Leinster Limited in Toronto. Mr. Hough has conducted extensive applied research in ecological restoration, including the woodland restoration project for the National Capital Commission, Ottawa that began 1983. He is a consultant in the field for a number of government and non-government organizations both in Canada and abroad.

His recent awards include the International Society for Landscape Ecology (US Branch) "Distinguished Practitioner" award, 1997; the Lieutenant Governor's Conservation Award, 1993; the Toronto Arts Award for Architecture and Design from the Arts Foundation of Greater Toronto, 1991; and the American Society of Landscape Architects Bradford Williams Medal for journalistic excellence, 1989. Mr. Hough is a past president of the Canadian Society of Landscape Architects, a member of the American Society of Landscape Architects, and a member of the Royal Canadian Academy of Arts.

F. Henry Lickers

Mr. Lickers is the Director of the Department of the Environment of the Mohawk Council of the Akwesasne. He is a biologist by training and has appeared widely as expert witness in many public hearings. He lectures on the value of indigenous knowledge.

Mr. Lickers has served on the International Joint Commission, Science Advisory Board and as scientific co-chair of the Haudenosaunee Environmental Task Force and the Assembly of First Nations Environmental Committee. Mr. Lickers also serves on the Environment Canada Research and Development Advisory Committee. He has been principal investigator for the Effect of Aborigines of Great Lakes Environment (EAGLE) which looks at contaminant effects on Great Lakes area Aboriginal peoples.

Mr. Lickers is active in Canada and Mexico studying and promoting the value of indigenous naturalized knowledge systems with a focus on the principle of "community." In collaboration with the University of Ottawa Mr. Lickers is also involved in a project involving indigenous communities in Mexico.

Thomas D. Nudds

Dr. Nudds is a professor in the Department of Zoology at the University of Guelph, where he teaches population and community ecology, conservation biology, and landscape ecology. His interest in national parks began when he conducted fieldwork in Point Pelee National Park for an M.Sc. degree from the University of Windsor. He subsequently earned a Ph.D. from the University of Western Ontario. With the help of graduate students, he has pursued research related to the measurement, prediction and conservation of species diversity and its implications for the design of protected areas.

His recent work with Parks Canada includes the re-introduction and monitoring of southern flying squirrels in Point Pelee National Park; participation in the early development of the Greater Ecosystem Initiative at Georgian Bay Islands National Park; and biological inventories of Fathom Five National Marine Park and Georgian Bay Islands National Park. He has been visiting faculty in the departments of Wildlife Ecology, Swedish University of Agricultural Sciences, and Fisheries, Wildlife and Conservation Biology, University of California at Davis; and associate editor of The Journal of Wildlife Management and the Canadian Journal of Forest Research.

Juri Peepre

Mr. Peepre obtained a Bachelor's degree in Landscape Architecture from the University of Guelph, and a Master of Science degree from the University of British Columbia, where he specialized in the rehabilitation of disturbed landscapes. He has been a consultant on protected areas, wilderness, recreation and conservation issues in western and northern Canada since 1981. Prior to moving north, he was the chair of the Outdoor Recreation Council of British Columbia and was an adjunct lecturer in the Natural Resources Management Program at Simon Fraser University. He now lectures part-time at Yukon College, in the Renewable Resources Management Program.

Mr. Peepre is a national trustee and past president of the Canadian Parks and Wilderness Society (CPAWS). He is also the Yukon co-ordinator for the Endangered Spaces Campaign led by World Wildlife Fund Canada and chairs the Yukon chapter of CPAWS. He is a past board member of the Wildlands Project and is a member of the World Commission on Protected Areas. He is also active with the Yellowstone to Yukon Conservation initiative.

Paul F. Wilkinson

Dr. Wilkinson holds a Ph.D. in Geography from University of Toronto. He is a Professor with the Faculty of Environmental Studies and Graduate Program in Geography at York University. Professor Wilkinson's research interests include tourism policy and planning, resource and environmental management, and urban open space planning. Dr. Wilkinson has undertaken research in Canada, Europe, the Caribbean, and Indonesia.

Professor Wilkinson is actively involved with two other organizations at York: the Centre for Research on Latin America and the Caribbean (CERLAC) and the University Consortium on the Environment (UCE). He has also been a visiting professor at universities in Indonesia, France, Kenya, and California. Dr. Wilkinson is on the Board of Directors of the Canadian Association for Leisure Studies and the Ontario Research Council on Leisure.

Stephen Woodley

Dr. Stephen Woodley holds a Ph.D. in Environmental Studies from the University of Waterloo. Dr. Woodley is a forest ecologist for Parks Canada at the National Office in Ottawa who was on leave from Parks Canada for the duration of the Panel's term. He is a member of the World Conservation Union (IUCN) World Commission on Protected Areas. He works on a number of issues related to ecological integrity, including developing techniques for monitoring and assessing ecological integrity. He is also responsible for the national fire management program within Parks Canada.

Dr. Woodley is Chair of the Greater Fundy Ecosystem Research Group. This group has developed a set of guidelines to conserve biodiversity and recently published an extensive study assessing the state of the Greater Fundy ecosystem. Dr. Woodley was also the Team Leader of the North American Test of Indicators of Sustainable Forestry. The Indonesian-based Centre for International Forest Research is conducting worldwide tests of criteria and indicators of sustainable forests.

Special Advisors

John Dennis, United States National Park Service

John Dennis is a biologist in the Natural Resource Directorate of the United States National Park Service. Dr. Dennis earned his B.A. in biology at Dartmouth College and his Ph.D. in Botany at Duke University. He did post-doctoral work at the University of Calgary. He has participated in field surveys or ecological research projects in New Hampshire, northern Alaska, southwestern Alaska, southwestern Alberta, and the Thelon Game Sanctuary in the Northwest Territories. He has participated in interdisciplinary groups such as the International Biological Program Tundra Biome Research Program, Hawaii Tropical Forest Recovery Task Force, Keystone Center national policy dialogues on biological diversity and on ecosystem management, and the United States Man and Biosphere Program National Committee. Since October 1974, he has worked in the Washington Office of the U.S. National Park Service addressing natural resource policy, science, and program development issues.

Harold Eidsvik, International Advisor

Harold Eidsvik has a BSF from the University of British Columbia and an MF from Michigan State University. Following a career in national parks, he retired as the Director of Policy for Parks Canada. During his career Mr. Eidsvik served from 1983-1990 as IUCN's chair of the World Commission on Protected Areas; subsequently, he was in charge of the Natural Heritage Program of the World Heritage Convention at UNESCO in Paris. For his work in park planning he received the Gold Medal of the Royal Canadian Geographic Society (1995). He is, in theory, retired but continues to manage a consulting firm, PARCS International, in Sidney, British Columbia.

Secretariat Members

Louise Blais

Louise joined Parks Canada in 1992 as Assistant to the Director of Park Establishment Branch. As administrative support, she has participated in the creation of new parks and celebrated many other successes. A new challenge came along with having to organize 11 Panel members, four employees and two advisors for a year — taking her mobile office from coast to coast.

Alain Dufresne

Alain Dufresne graduated from Laval University in 1972 with an undergraduate degree in wildlife ecology. Since then he has worked in various capacities within Parks Canada. He started as a Chief Park Warden in Kouchibouguac National Park, then Resources Inventory Co-ordinator Québec Region, and then as Chief, Ecosystem Conservation Service in Québec. In this capacity he developed the ecosystems conservation programs for the national parks in Québec in co-operation with the field staff, ranging from policy and guidelines development and implementation, to project development and program evaluation.

Mr. Dufresne has also been involved in many international projects dealing with park management, and system planning and evaluation, in many developing countries. From 1994-97, he was the host country co-ordinator in charge of the organization of the IUCN World Conservation Congress held in October 1996 in Montréal. He is still working with IUCN in various advisory capacities concerning the management and protection of national parks and other protected areas.

Luc Foisy

Luc Foisy graduated from Laval University with a degree in Forestry in 1971. He has more than 29 years in the field of conservation in Canada's national parks. During his career as an ecologist he has worked as project co-ordinator and as administrator at the regional scale for the management of ecosystems and natural resources of Forillon and La Mauricie national parks, Mingan Archipelago National Park Reserve, the Saguenay -Saint-Lawrence Marine Park as well as national historic sites and historic canals in Québec. He was involved in the establishment and the development of protected areas, in the management of numerous research contracts aiming to increase knowledge of park ecosystems, the management of vegetation and wildlife restoration and protection project and co-ordinating environmental assessments. In recent years Mr. Foisy has participated in several federal-provincial inter-ministerial round tables relating to the elaboration of strategies for sustainable development and to the preservation of Canadian biodiversity.

Appendix A: 6

Judith Froome

Judith Froome's career has gone from radio and retail copywriting, to printing sales, to exhibit planning and beyond. In 1988, after many years in the private sector, she joined the Public Service as Exhibits and Audio/Visual Officer for the then Department of Communications. In 1993 she became part of the new Department of Canadian Heritage as a Communications Advisor.

Ms. Froome is on assignment to the Panel from the Communications Branch of Parks Canada at the National Office (Ottawa) where she serves as Communications Advisor for National Historic Sites and, at times, corporate memory.

She says that her year with the Panel has provided her with opportunities few headquarters people, or Canadians, would ever have. Experiences such as spending the summer equinox north of 60°, and seeing the Northern Lights like never before while in Gros Morne, have provided lifetime memories. She has met the strength of Parks Canada, its people, throughout the country, and applauds their dedication.

Paul Tarleton

Paul Tarleton has worked in national parks since 1983, first in Prince Albert National Park and then in Riding Mountain. He has held various positions including Park Warden and Assistant Chief Park Warden; he is currently Manager, Ecosystem Secretariat for the Riding Mountain and Manitoba Field Unit. He obtained a B.Sc. in wildlife biology from the University of Guelph, Ontario, and a Master of Natural Resources Management from the University of Manitoba.

APPENDIX B: Glossary

Throughout this report, the Panel uses certain words and phrases in a particular and specific way that may be slightly different from other usage for these words and phrases. The glossary below defines meanings for words and phrases as used in this report.

Aboriginal

For the purpose of this report, the terms "Aboriginal" and "Aboriginal peoples" apply to Inuit, Métis, non-status and status Aboriginal peoples.

Aboriginal Secretariat

A branch of Parks Canada, established in 1999 and reporting directly to the Chief Executive Officer. The Secretariat provides information and policy advice on Aboriginal issues across Canada and how these may apply to Parks Canada, including partnerships, economic development, and employment opportunities with Parks Canada for Aboriginal peoples.

Adaptive Management

Adaptive management is done whenever the dual goals of achieving management objectives and gaining reliable knowledge are accomplished simultaneously; it is a scientifically defensible means of learning while doing.

Advocacy

Verbal support or argument for a cause, policy, etc. (Canadian Oxford Dictionary).

Alien species, exotic species

A species that was not originally found in a given area but is now found there as a direct or indirect consequence of human activity (Parks Canada terminology bulletin 236).

Allowable use/activity

One which does not contravene the national parks act and regulations for Parks Canada and which may also be appropriate to the conditions in a specific heritage area (State of the Parks 1997 Report).

Appropriate use/activity

An activity that is consistent with these [Parks Canada policies] and the protection of ecological and/or commemorative integrity of protected heritage areas; is especially suited to the particular conditions of a specific protected heritage area and provides the means to appreciate, understand and enjoy protected heritage area themes, messages, and stories (Parks Canada, Guiding Principles and Operational Policies, 1994, p 118).

Backcountry

Portions of a park not accessible by private vehicles. Backcountry areas are usually kept in a pristine state and may offer minimal facilities such as hiking trails, primitive campsites, shelters and portages (Parks Canada's terminology bulletin 236).

Benchmark areas, Ecological benchmark

Reference areas within national parks used for comparing the natural evolution of a park's ecosystems to the evolution of similar ecosystems in "working" landscapes outside of national parks.

Biological diversity, Biodiversity

The variety of life, from genes and species to communities, ecosystems, functions and processes (from Protecting Canada's Endangered Spaces, Hummel, 1995)

Biosphere Reserve

A representative example of a landscape, with its characteristic plants, animals and human uses, which has been given an international designation under UNESCO's Man and the Biosphere (MAB) program (Parks Canada's terminology bulletin 236).

Buffer zone

A part of the land that serves to alleviate the adverse effects of the use of one area upon another (Parks Canada's terminology bulletin 236).

Canadian Parks Partnership

A nation-wide alliance of volunteer co-operating associations that supports national parks, national historic sites and historic canals across Canada (Parks Canada terminology bulletin 236).

Conservation

The implementation of measures for the rational use, maintenance and rehabilitation or restoration of natural resources (Parks Canada terminology bulletin 236).

Conservation Data Centres

Co-operative organizations aimed at providing critical biological information for conservation programs. Data centres operate by gathering, interpreting and distributing standardized information on the ecological status of wild species and communities.

Conservation easement

A right-of-way or similar right, over another's land (Concise Oxford Dictionary) for purposes of conserving ecosystem components.

Co-operating association

A registered, non-governmental and non-profit corporation that provides services to the public at national parks, national historic sites or historic canals (Parks Canada terminology bulletin 236).

Critical habitat

A habitat that is essential to the survival of a species. Critical habitats may include breeding grounds, areas that provide year-round support for a large portion of the entire population of a particular species, winter feeding grounds, feeding stations used year-round or during periods of migration, or areas used by many species at least part of the year (Parks Canada terminology bulletin 236).

Cumulative effects

The effects on the environment, over a certain period of time and distance, resulting from effects of a project when combined with those of other past, existing, and imminent projects and activities (from the Canadian Environmental Assessment Act, Responsible Authority's Guide).

Ecological Integrity

The Panel's detailed and specific definition of ecological integrity is contained in Chapter 2, Volume II of this report. In short, the Panel defines ecological integrity as follows:

"An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes."

In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.

Ecological Integrity Statement

The purpose of Ecological Integrity Statements is to develop a common understanding of the state of ecological integrity in the park and of what needs to be done to maintain or restore it.

Ecosystem

An interdependent system of living organisms with their physical and geographical environment (Parks Canada terminology bulletin 236).

Appendix B: 2

Ecosystem-based management

The management of human activities so that ecosystems, their structure, function, and composition, and the physical, chemical and biological processes that shaped them, continue at appropriate temporal and spatial scales. Ecosystem-based management is an approach with an aim to integrate parks into their surrounding landscapes so that they do not function as isolated habitat islands. Ecosystem-based management accounts for the range of complex interactions that occur at different temporal and spatial scales and sustainably incorporates a range of human values into the protection and use of the landscape (Parks Canada terminology bulletin 236).

Ecosystem Conservation Plan

The Ecosystem Conservation Plan is a dynamic document which develops and proposes specific goals for the maintenance of park ecological integrity and management of the park's ecosystems. The goals are based upon the objectives identified in the Park Management Plan. The Ecosystem Conservation Plan describes problems, issues and concerns relating to the conservation of the park's ecosystems. It defines needed ecosystem management actions and presents a documented prioritized plan to implement them.

Ecosystem Management Plan

A management document that contains objectives and action plans for the protection and management of a park's natural ecosystems and components.

Ecosystem Secretariat

An organizational grouping in the national parks of western and northern Canada, with expertise in ecology, planning, environmental assessment and information management. The purpose of the Secretariat is to provide necessary elements for an ecosystem-based approach to management.

Ecotourism

An ecotourist might be more environmentally responsible or aware than an ordinary tourist, but to be truly less harmful than mass tourism, the Panel argues that true ecotourism would:

- be defined clearly as a particular bundle of allowable and appropriate recreational activities and related facilities and services;
- cause minimal negative effects in terms of environmental, social and economic impacts;
- include types and levels of activities that are appropriate to the local setting and to regional/national interests;
- use facilities designed and constructed to be locally appropriate, with an emphasis on local materials and skills;
- cause or use developments appropriate to the needs of the local community;
- provide local people with maximum opportunities for employment at all levels, from ownership to management to operation;
- incorporate an educational component.

Environmental assessment

An assessment of the environmental effects of a project that is conducted in accordance with the Canadian Environmental Assessment Act and its regulations.

Environmental impact

The effects of human intervention on natural and cultural resources (Parks Canada terminology bulletin 236).

External Relations Branch

Reporting to the Director General, National Historic Sites, the External Relations Branch is the marketing branch of Parks Canada, serving both national parks and national historic sites.

Field Unit

An administrative division developed by Parks Canada, combining the management and administration of one or more national park(s), national historic site(s) or historic canal(s). There are 32 Field Units across Canada.

First Nations, First Nation governments

In this report, these terms are applied specifically to governments of status Aboriginal peoples.

Frontcountry

Portions of a park that are accessible by a motor vehicle or boat and which contain a concentration of services and facilities (Parks Canada terminology bulletin 236).

Greater ecosystem, Greater park ecosystem, Regional ecosystem

A geographic depiction of an ecosystem of a scale appropriate to understanding and management of ecosystem components. Greater ecosystems frequently cross jurisdictional boundaries.

Habitat

The particular environment or place where an organism or species tends to live (Parks Canada terminology bulletin 236).

Habitat fragmentation

The process of dividing a continuous habitat into non-continuous, smaller sub-units (Parks Canada terminology bulletin 236).

Heritage presentation

An educational or recreational activity that contributes to a better understanding, appreciation and enjoyment of heritage resources (Parks Canada terminology bulletin 236).

Heritage protection

"Protection" refers to regulatory measures, resource management and public education programs aimed at ensuring that ecosystems are maintained in as natural a state as possible. "Heritage" is the cultural and natural resources that are passed down from generations and that must be protected for future generations (Parks Canada terminology bulletin 236).

Impair, Impairment

To change the ecological structure or function of a given area so it no longer performs at an ecological optimum (Parks Canada terminology bulletin 236).

Implementation (Business) Plans

Plans currently developed at Parks Canada's second tier of planning. These plans contain Parks Canada's capital plans and satisfy all the criteria and policy requirements for Long Term Capital Plan (LTCP) as set out in the Treasury Board Manual, Chapter 1-1 and Appendix B. Business Plans describe how Parks Canada's financial requirements, including those of a capital nature, will be managed according to the five investments streams :

- ongoing operations
- non-depreciable heritage assets
- depreciable contemporary assets
- new investments in existing parks and historic sites
- investments in new parks and new historic sites

Infrastructure

The basic structural foundations of a society or enterprise; a substructure or foundation such as roads, bridges, sewers (Concise Oxford Dictionary).

Interpretation

An educational activity whose objective is to reveal meanings and relationships through the use of artifacts, illustrative media and first-hand experiences rather than by simply communicating factual information (Parks Canada terminology bulletin 235).

ISO 14000 Series

Standards created by the International Organization for Standardization. The ISO 14000 series of standards is the world's first internationally-accepted standard for environmental management. ISO 14001 standards include a provision for registering goals and associated activities for achievement, and certification by a third party. ISO 14004 standards include provisions for conducting environmental audits but do not include certification.

Land Claims

In 1973, the Canadian federal government recognized two broad classes of claims: comprehensive and specific. Comprehensive claims are based on the recognition that there are continuing Aboriginal rights to lands and natural resources. These kinds of claims come up in those parts of Canada where Aboriginal title has not previously been dealt with by treaty and other legal means. The claims are called "comprehensive" because of their wide scope. They include such things as land title, fishing and trapping rights and financial compensation. Specific claims deal with specific grievances that First Nations may have regarding the fulfillment of treaties. Specific claims also cover grievances relating to the administration of First Nations lands and assets under the Indian Act.

Metadata

Metadata sets include facts describing the nature of the data and circumstances of the data at the time of recording.

Mitigation

The elimination, reduction or control of the adverse environmental effects of a project, use or activity.

Native Species

Organisms that occur naturally in a particular area instead of being introduced, directly or indirectly, by human activity.

National Documentation Centre, Resource Centre

A repository located at Parks Canada's National Office in Ottawa, dedicated to the management of all reports and studies generated by or for national parks.

National Marine Conservation Area

A designated marine area set aside in accordance with the National Marine Conservation Area Policy.

National park

Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations; (b) exclude exploitation or occupation inimical to the purposes of designation of the area; and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Source: "Guidelines for Protected Areas Management Categories" – IUCN – The World Conservation Union (1994).

In Canada, the word also means a national park as described in Schedule 1 of the National Parks Act. It is an area which has been identified as a natural area of Canadian significance, which has been acquired by Canada and designated by Parliament as a national park, and over which Parks Canada has been given administration and control under the authority of the National Parks Act. It is managed for the benefit, education and enjoyment of Canadians so as to leave it unimpaired for future generations.

Natural processes

Ecological processes that support life, such as solar energy, climate processes, geologic and geomorphologic processes, water cycles, fire cycles, wildlife population dynamics, and so on.

Natural regions (terrestrial)

Canada is subdivided in 39 distinct natural terrestrial regions based on geology, physiography and vegetation. The system of Canadian national parks is designed to protect representative natural areas of national significance in each of these 39 natural regions.

Natural Resources Management Process

Directly connected to the Park Management Planning Process, the Natural Resource Management Process identifies the main steps and products required to ensure the preservation of the parks' resources based on the objectives of the Park Management Plan. The main steps of that process are:

- resource conservation management guidelines
- basic resource inventory
- resource description and analysis
- ecosystem conservation plan
- resource management studies
- resource management plans
- monitoring

Naturalized knowledge

An understanding of the land and interrelationships that comes from a long and intimate association — knowledge that comes from being part of an ecosystem. Naturalized knowledge includes traditional knowledge that is part of Aboriginal communities as well a informal knowledge from ranchers, farmers, fishers and naturalists.

Outreach program

An off-site interpretation program that encourages and facilitates public understanding and appreciation of Canada's natural and cultural heritage. Intended to foster active involvement in heritage preservation and protection (Parks Canada terminology bulletin 236).

Park Management Plan

Each park management plan contains a statement of park purpose and objectives that reflects the role of the park in the system of national parks, and in the natural region in which the park is located. The plan provides the framework for further detailed sub-plans concerning ecosystem management, interpretation, visitor services and visitor risk management. Park Management Plans are required to be tabled in Parliament every five years.

Park visitor

Any person who does not reside within a national park, who travels to a national park for purposes of recreation, business, education or other activities. Parks visitors may be tourists or recreationists.

Parks Canada Agency

The Parks Canada Agency is a public agency created by an Act of Parliament dated February 1998 (Bill C-29). The Agency has the mandate to conserve, protect and present nationally significant natural and cultural heritage. The Agency reports directly to the Minister of Canadian Heritage.

Parks Canada

While there are branches of the Parks Canada Agency concerned with national historic canals, national historic sites, and other locations or structures, in this report the term "Parks Canada" is used specifically with reference to those areas of the Parks Canada Agency with jurisdiction over national parks.

Preservation

All actions taken to retard deterioration of, or to prevent damage to, a natural or a cultural resource. Preservation encompasses conservation activities that consolidate and maintain the existing form, material and integrity of a resource. Preservation includes short-term protective measures as well as long-term actions (Parks Canada terminology bulletin 236).

Protection

With respect to ecosystems, protection means regulatory, resource management and public education programs aimed at ensuring ecosystems are maintained in as natural a state as possible. In the context of this report, protection refers to activities within a national park or other protected area, while "sustainability" refers to broader landscape activities that extend beyond park boundaries.

Recreation

A wide range of human activities that are undertaken for the pleasure of the persons involved. Recreational activities range from relatively structured games to individualized actions which are informal, spontaneous, and variable in location.

Recreationist

A person taking part in some form of recreation. Tourists are recreationists when they hike or bird-watch in a national park, but not all recreationists in national parks are tourists. Many park users — including permanent or seasonal residents of park communities, regional residents, or true tourists on a day-trip through a park — do not meet the above definition of tourist.

Restoration

The process of restoring an area, a natural resource or an ecosystem to a specified state or condition; accomplished passively through natural processes or actively by human manipulation (Parks Canada terminology bulletin 236).

Round Table

A general term used to describe a variety of multi-stakeholder participatory processes that are typically advisory bodies to decision makers. Round tables may also be referred to as "consensus" processes" or "shared decision-making: processes."

Service Centres

Parks Canada service bureaus, which offer support to Field Units in terms of professional and technical services.

Species re-introduction

The process of reintroducing species that were formally part of an ecosystem but were extirpated, usually because of the actions of humans.

Species restoration

The act of restoring a species to its full ecological role in a community. Restoration may include re-introduction of extirpated species or enhancing an existing population that is unnaturally low.

State of the Parks Report

Following the 1988 amendment to the federal National Parks Act, the State of the Parks Report is intended to be a historical record of the parks' and historic sites' state. Produced by Parks Canada, this report is to be presented to Parliament every two years.

Stewardship

Management of heritage resources in such a way that they can be passed on with integrity to future generations (Parks Canada terminology bulletin 236).

Sustainable use, Sustainability, Sustainable manner

"Sustainable use" means that people can gain direct and indirect benefits from national parks and protected areas over the long term, without destroying them. "Sustainability" refers to decisions and actions outside of national parks that support the concept that resources should be developed or used in a way that does not impair their use by future generations. "Sustainable manner" means the use of resources in a way that ensures their integrity is not destroyed.

Tourism

Either:

- a) the sum of the ... elements (travel, destination areas, tourist), resulting from the travel of non-residents (tourist, including excursionist) to destination areas, as long as their sojourn does not become a permanent residence. (Murphy 1985) or
- b) the sum of phenomena and relationships arising from the interaction of tourists, business suppliers, host governments, and host communities in the process of attracting and hosting these tourists and other visitors. (McIntosh and Goeldner 1986).

Tourist

A person travelling for a variety of reasons, such as education, religion, health, sports, business, recreation, and so on (IUOTO 1968) staying at least one night (UNCTAD 1971).

Trophic level

The position of a species on an ecosystem's food web. Trophic levels range from primary producers (green plants) to top carnivores.

Wilderness

An enduring natural area of sufficient size to protect pristine ecosystems which may serve physical and spiritual well being. It is an area where little or no persistent evidence of human intrusion is permitted so that ecosystems may continue to evolve (National Wilderness Colloquium, 1988).

Wildlife corridor

A strip of land through which wild animals can move safely from one protected area to another (Parks Canada terminology bulletin 236).

Zoning

The national park zoning system is an integrated approach by which the land and water areas within a park are classified according to ecosystem and cultural resource protection requirements, and their capability and suitability to provide opportunities for visitors experiences. The national park zoning system comprises the following five zones :

- Zone I Special preservation
- Zone II Wilderness
- Zone III Natural environment
- Zone IV Outdoor recreation
- Zone V Park services

Appendix C: Report of the Sierra Legal Defense Fund to the Panel

Improving the National Parks Act to Support Ecological Integrity

This appendix summarizes the changes to the National Parks Act that were considered by the Panel to help maintain ecological integrity. The appendix provides background information and proposed legal language in support of recommendations made in the body of the report. The appendix also contains additional legal analysis that provides suggested directions for the future, while specific recommendations were not included in the Panel report. Some issues, such as legal surveys of designated wilderness zones, appear to have been resolved since the analysis was completed. The Panel thanks the Sierra Legal Defense Fund for their assistance with this legal review.

The Panel believes that the present references to ecological integrity in the National Parks Act and the Parks Canada Agency Act are not adequate to fully implement ecological integrity objectives in the parks. To better maintain and restore EI, the Panel suggests that many of the changes set out below be incorporated into Bill C-70 (or its successor) immediately. Other proposals will require further consideration and incorporation into future Parks Act amendments.

None of the proposed changes constitutes a fundamental change in direction for park management, but together they should provide the necessary legislative basis for consolidating the gains that have been made on ecological integrity and ensuring that further progress is mandated. For the most part the Panel recommends improvements to the National Parks Act so that the legislation "catches up" with the progress already made on ecological integrity in policy and operations. This will help ensure that the principle of ecological integrity is mandated more clearly by law (which will give park managers a stronger platform from which to implement ecological integrity-friendly decisions) and that progress made by Parks Canada to date is not eroded without legislative scrutiny. Other changes, such as those respecting wilderness areas, are intended to expedite the effective use of existing legislative tools to protect ecological integrity.

This appendix discusses changes to the National Parks Act in the following subject areas: (A) Ecological Integrity (Generally), (B) Management Plans and ecological integrity Indicators, (C) Wilderness Areas, (D) Regional Integration, and (E) Resource Harvesting. Finally in section (F), we provide our thoughts on two items in the current Bill that may adversely affect parks.

PROPOSED LEGISLATIVE CHANGES TO BILL C-70

A) *Ecological Integrity*: To ensure EI is the overriding priority in all parks management and decision-making, the Panel recommends that the general provision (s. 8 of Bill C-70) respecting the management and administration of parks be amended to include two new subsections. The revisions would help the Bill reflect the significant advancements already made in Parks Canada Policy and be consistent with the reflection of EI as the central mandate as set out in the new Agency legislation. The new proposed section 8 would build on the reference to EI currently in section 11 of the Bill (and also the current Act) and set out explicit provisions for ensuring that park management decisions respect EI. Exceptions could be made for emergencies.

Ecological Integrity

8. (2) Maintenance and restoration of ecological integrity, including the protection of natural resources, shall be the overriding priority in the management and administration of the parks, such that no management plan, permit, licence, lease, agreement, or other authorizing instrument may be issued under this Act or the regulations

- (a) if the matter in question, taking into account existing stressors on park ecological integrity, will
 - (i) impair the ecological integrity of a park;
 - (ii) diminish the population, range or habitat of an extirpated, endangered, threatened, or vulnerable species¹ or interfere with the recovery of such a species;
 - (iii) diminish the population, range or habitat of any other species indigenous to a park to an extent that the population of such a species is no longer healthy, viable and well-distributed in a park; (iv) impair a natural ecological process in a park; or
 - (v) result in a net environmental impact.²

or

- (b) if it would enable development or activities to proceed beyond those basic and essential services³ that are required for the enjoyment of the parks in a state that leaves them unimpaired for the enjoyment of future generations.

Exceptions

8. (3) Subsection (2) does not apply to emergency situations involving the protection of national security, human safety or human health.

B) *Management Plans and EI Indicators*: The Panel recommends that the Bill set out in more detail the basic requirements of the park management plan and that the Bill mandate the continuation of an EI indicator program (already put in place by Parks Canada through policy). Section 11 of the Bill would be replaced by the following new section. This would help modernize the Bill to bring it up to date with current Parks Canada Policy and practice.

[Note: Subsection 11(3) of the current Bill, which is the only section that currently refers to EI, should only be removed if the more widely applicable proposed EI section above (8(2)) is adopted in its place. If the above changes to section 8 are not forthcoming, then subsection 11(3) should be amended, not deleted, as set out in this footnote,⁴ and the subsections of section 11 renumbered to reflect its inclusion.]

Management Plans

11. (1) The Minister shall, within five years after a park is established, prepare a management plan for the park which shall be tabled in each House of Parliament.

[remains as is in Bill C-70] Review of Plans

11. (2) The Minister shall review the management plan for each park every five years, and any amendments to a plan shall be tabled with the plan in each House of Parliament.

Management Plan Contents⁵

11. (3) The Minister shall include in each management plan

- (a) provisions for the protection of park values and visitor use;
- (b) park zoning provisions including wilderness zones that exist in a natural state or that are capable of returning to a natural state, and special preservation zones that require more stringent restrictions on use than wilderness zones in order to protect park resources;
- (c) a long-term ecological vision of the park that reflects ecological time frames and is based on the state of the ecosystem deemed representative of the natural region or regions in which the park is situated;⁶
- (d) a conceptual model of the park's ecological system;
- (e) an evaluation of the park's present state;
- (f) a statement that maintaining and restoring ecological integrity is the overriding priority of the plan, and that all activities and projects contemplated by the plan are compatible with that goal;
- (g) a specific set of goals and measurable objectives that provide a long-term direction for maintaining and restoring ecological integrity;
- (h) a comprehensive group of performance targets related to the goals and objectives and tied to a monitoring and evaluation program;
- (i) a list of indicators designed to adequately assess the ecological integrity of parks, which will be monitored throughout the implementation of the plan;
- (j) an ecosystem conservation strategy that follows ecosystem-based management principles;
- (k) where visitor use is a threat to ecological integrity, provisions for overall visitor limits as well as specific limits for sensitive areas; and
- (l) such other provisions as the Minister considers appropriate.

Ecological Integrity Indicators

11. (4) The Minister shall monitor the indicators referred to in subsections 11(3)(i) and 11(5) in each park to assist in assessing the degree to which ecological integrity is being successfully maintained and restored.

List of Indicators

11. (5) The list of indicators shall be prescribed by the Minister within two years of the coming into force of this Act and will include indicators relating to biodiversity, ecosystem stressors, ecosystem functions, and any others that the Minister considers appropriate.

Updating Indicators

11. (6) The Minister shall, at least every five years, review the indicators prescribed under subsection (5) and prescribe any changes to the list to ensure that the indicators are reflective of scientific advancements.

Development of Indicators

11. (7) The Minister shall appoint a panel of scientific advisors with expertise in ecological integrity to advise on the development of the indicators referred to in subsection (5) and the periodic review referred to in subsection (6).

Management to Consider Monitoring Program

11. (8) In managing the parks, the Minister shall consider the results of the monitoring program in subsection (4) and take such steps as are necessary to best maintain and restore the ecological integrity of the parks.

Results in Management Plan

11. (9) The results of the monitoring program in the previous five-year period shall be reported in the management plan for each park together with a statement summarizing the changes in the indicators and the steps required to be taken to maintain and restore ecological integrity in the next five year period.

Report

11. (10) The report prepared under subsection 12(2) shall contain a national summary of the results referred to in subsection (9).

C) **Wilderness Areas:** To remove barriers to and encourage the development of wilderness areas regulations, the Panel recommends that section 14 be replaced by the following. As noted in Parks Policy, wilderness designations are excellent means of protecting ecosystems. Nevertheless, no wilderness area has been legally designated and Parks Canada continues to rely on "wilderness zones" in park management plans. These "zones" do not benefit from the added protections in the Act that apply to "wilderness areas". The Panel therefore recommends that these zones (in addition to any others the Minister considers appropriate) be designated as official wilderness areas after the coming into force of the Act so that they will be afforded legal protection and further the maintenance of EI in parks. We also recommend that the Governor in Council only be required to be involved in removing a wilderness area, and that a straightforward Ministerial regulation suffice for adding areas.

[Note: Subsection (5) is intended to remove a perceived barrier to wilderness areas designation (i.e. the cost of surveys). We have been advised that a legal survey is not needed and that other means, such as maps are often used under other legislation and regulations. As well, we have been advised that a series of GPS points would also suffice. Nevertheless, out of abundance of caution, we recommend the inclusion of subsection (5) to make it very clear that the cost of surveys will no longer constitute a barrier to designation.]

Wilderness Areas

14. (1) The Minister may, by regulation, declare any area of a park that exists in a natural state or that is capable of returning to a natural state to be a wilderness area.

[remains as is in Bill C-70] Maintaining character

14. (2) The Minister may not authorize any activity to be carried on in a wilderness area that is likely to impair the wilderness character of the area.

[remains as is in Bill C-70] Exceptions

14. (3) Notwithstanding subsection (2) but subject to any conditions that the Minister considers necessary, the Minister may authorize activities to be carried on in a wilderness area for purposes of

- (a) park administration;
- (b) public safety;
- (c) the provision of basic user facilities including trails and rudimentary campsites;
- (d) the carrying on of activities in accordance with regulations made under section 18; or

Designation

14. (4) Within one year of the coming into force of this Act, the Minister shall ensure that all wilderness and special preservation zones designated as such in an approved park management plan at the time this Act comes into force are designated under subsection (1), in addition to any other wilderness areas the Minister designates.

[The Panel recognizes that the Minister might not be comfortable with automatically designating all of the current wilderness zones as wilderness areas. If so, an avenue such as the following could be used to allow the Minister to revise the zones.]

Designation Exception

Notwithstanding subsection (4), the Minister may, in exceptional circumstances, elect not to designate portions of the zones referred to in subsection (4) if they are imminently required for other park purposes. Prior to making such an election, the Minister shall provide public notice and an opportunity for public comment on the proposed decision.

Description of Areas

14. (5) The approximate boundaries of areas established under subsection (1) may be described in the regulations through the use of maps, plans, charts, surveys, or latitude and longitude coordinates, or by reference to features, developments, utility and transportation corridors, landmarks, landforms, waterbodies, natural or cultural characteristics, or any other means the Minister considers appropriate.

Consent of Governor in Council

14. (6) No amendment may be made by the Minister to a regulation under subsection (1) for the purpose of removing any wilderness area or portion thereof unless the Governor in Council, by order, concurs with the removal. Prior to seeking the concurrence of the Governor in Council, the Minister shall provide public notice and an opportunity for public comment on the proposed decision.

D) *Regional Integration*: To encourage the regional integration of park management with the surrounding landscape, the Panel believes that a general provision should be added to section 8. Additionally, because the Panel has found that many threats to park EI emanate from development beyond park boundaries, and that such development often engages areas of federal jurisdiction, we propose consequential amendments to CEAA. These changes would further the consideration of effects on parks in environmental assessments and minimize the adverse effects of other federal decisions on parks. These are key changes required to help deal with one of the greatest threats to EI.

Bill C-70 Changes

Regional Integration

8. (4) The Minister shall actively seek to maintain and restore the ecological integrity of the parks by working in cooperation with adjacent landowners, and by participating in regional land use planning, environmental assessments, and other decision-making processes whose outcomes are reasonably expected to affect the ecological integrity of a park.

CEAA Changes

A new section allowing the Minister to require environmental assessment of projects affecting parks: The section set out below would require environmental assessments of those projects that may adversely affect parks, but would otherwise not trigger an environmental assessment under section 5 of CEAA. The Panel believes that this section will be one important means of ensuring that parks EI is better integrated with decisions outside park boundaries.

Environmental effects on parks

48.1. (1) Where no power, duty or function referred to in section 5 is to be exercised or performed by a federal authority in relation to a project that is to be carried out in Canada and the minister designated as the responsible minister for the National Parks Act is of the opinion that the project may cause adverse environmental effects on a park or park reserve under the National Parks Act, or areas under consideration by that minister for designation as a park or park reserve under the National Parks Act, or wildlife that frequents such a park or park reserve that minister shall refer the project to a mediator or a review panel in accordance with section 29 for an assessment of the environmental effects of the project on those areas.

Initiative for reference

48.1. (2) The minister designated as the responsible minister for the National Parks Act shall consider whether to make a reference pursuant to subsection (1)

- (a) on the request of the government of any interested province, territory, or municipality;
- (b) on his or her own initiative; or
- (c) on receipt of a petition that is
 - (i) signed by one or more persons, and
 - (ii) accompanied by a concise statement of the evidence supporting the contention of the petitioner that the project may cause adverse environmental effects in respect of which a reference may be made pursuant to subsection (1).

Notice

48.1. (3) At least ten days before a reference is made pursuant to subsection (1) or (2), the minister designated as the responsible minister for the National Parks Act shall give notice of the intention to do so to

- (a) the proponent of the project;
- (b) the governments of all interested provinces; and
- (c) any person who signed a petition considered by the that minister pursuant to subsection (2).⁷

No limitation

48.1. (4) Nothing in this section limits the authority of the Minister to act under section 48 in respect of the areas referred to in subsection (1).

A new subsection requiring environmental assessment decisions to protect parks (to be added to sections 20 and 37 of CEAA): The section set out below would ensure that those environmental assessments for projects affecting parks that are already triggered under CEAA would result in decisions that would better protect the EI of parks.

Course of Action Affecting Parks

20/37. (4) In carrying out a course of action in respect of a project that is likely to cause adverse environmental effects on a park or park reserve under the National Parks Act or wildlife that frequents such a park or park reserve, the responsible authority shall ensure that the matter in question will not result in any of the impacts set out in subsections 8(2)(a)(i-v) of the National Parks Act. ⁸

E) *Resource Harvest:* It is well recognized that where permitted, the harvesting of resources in a park must be consistent with resource conservation principles. In order to properly assess the limits that may be needed on harvest, the Panel believes that a monitoring and management program should be required. A further subsection to section 18 is therefore recommended:

Monitoring and Management

18. (6) Where resource harvesting activities otherwise permitted under this Act are carried out in a park, the Minister shall institute and carry out an ongoing monitoring and management program for each resource being harvested to ensure that each resource being harvested is conserved and maintained at a level that leaves the resource unimpaired for the enjoyment of future generations and maintains the ecological integrity of the park.

F) *Other Items:* The Panel has concerns about two provisions in the current Bill that may adversely affect parks EI. We recommend that they be revisited in the context of how they can be amended to better ensure that EI is maintained.

(i) *Sunshine Ski Area:* It is our understanding that when the Act last went through revision, Sunshine was given (at the Committee stage) a temporary exception from the requirement for legislated ski area boundaries. It has now been over ten years and two plans later and the Bill still does not establish the boundaries. To be consistent with the purposes of the Act and the treatment given the other ski areas, we suggest that the exception given to Sunshine in subsection 37(2) be considered for removal and instead have its current leasehold interest legislated under Schedule 5.

(ii) *Water Exports:* It would appear to the Panel that subsections 10(2)(b) and (c) of the Bill are wider than necessary for allowing water exports. Additionally, they are arguably inconsistent with the need to manage the parks for parks purposes not other purposes. The Panel suggests that these sections be revisited in order to best maintain EI. If the development of such water export agreements is to be terminated, a grandparenting provision may be necessary to protect current interests.

Footnotes

¹ A definition would likely be necessary to accompany the wording of this section:

Definitions

- #. (1). A species is deemed to be extirpated, endangered, threatened or vulnerable,
- (a) if it is designated as such by or under any of the following:
- (i) the most current published list of the Committee on the Status of Endangered Wildlife in Canada;
 - (ii) any Act of Canada concerning the protection of wild fauna and flora; and
 - (iii) any Act of a relevant province or territory, in which a park occurs or to which it abuts, concerning the protection of wild fauna and flora; or
- (b) if the superintendent of a park or the Minister determines that a species is extirpated, endangered, threatened or vulnerable in a park.
- (2) A superintendent of a park or the Minister shall designate a species under subsection (1)(b) if the superintendent or Minister believes that the species in question is at risk in one or more parks, having regard to available scientific and other information.¹
- (3) "species" means a species, subspecies or geographically or genetically distinct population of animal, plant or other organism that is wild by nature and
- (a) is native to Canada; or
 - (b) extended its range into Canada without human intervention and has been present in Canada for at least 50 years.

For the purposes of this definition, a species, subspecies or geographically distinct population is, in the absence of evidence to the contrary, presumed to have been present in Canada for at least 50 years.

² A definition of "net environmental impact" would be necessary to accompany the wording of this section. The Panel needs to discuss further the wording of such a definition, but the Panel believes that the items listed below need to be considered in arriving at a definition:

- (i) increases in emissions of greenhouse gases as defined in the Kyoto Protocol;
- (ii) displacement of any native species of plant or animal directly or indirectly;
- (iii) disruption of wildlife movement corridors;
- (iv) creation of a visual impact on park resources;
- (v) increased use of water whether through the consumption of water or discharge of water or substances into water;
- (vi) synergistic or cumulative effects on infrastructure; and
- (vii) other impacts identified by the Minister as an unacceptable environmental impact.

³ A definition of "basic and essential" could accompany the wording of this section. The Panel is presently discussing what constitutes "basic and essential" services and will offer its thoughts, which could be used in formulation of legal definition at a later date.

⁴ The following is a proposed replacement for subsection 11(3) if changes to section 8 (above) are not adopted:

Ecological Integrity

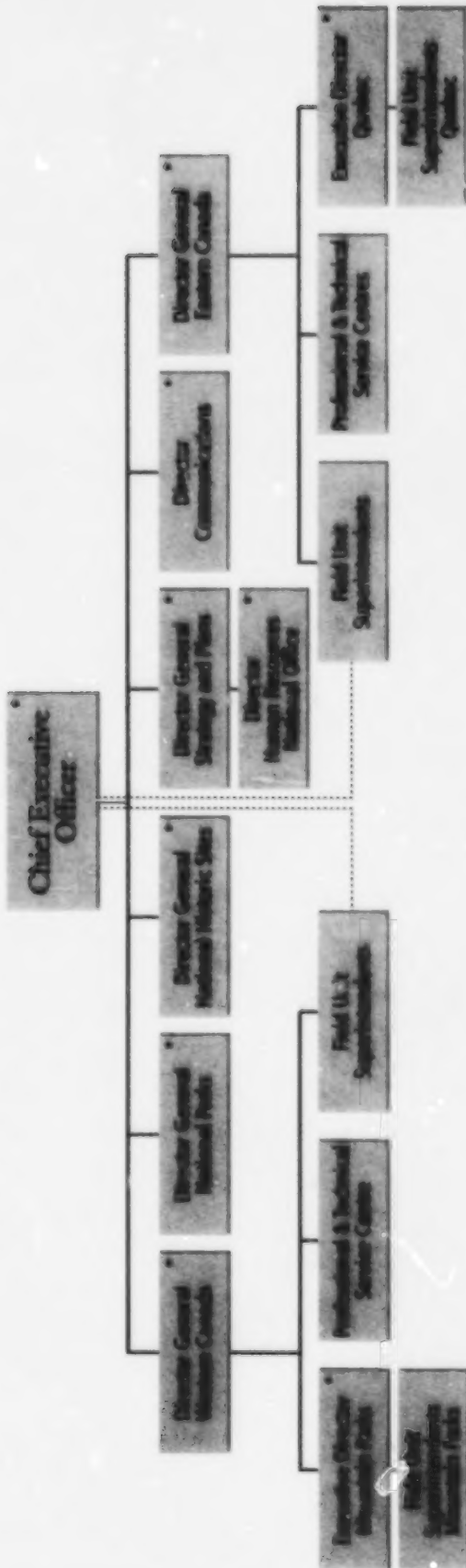
11. (3) Maintenance and restoration of ecological integrity, including the protection of natural resources, shall be the overriding priority in all aspects of park management and decision-making.

⁵ This is the current list of key management plan contents under discussion by the Panel. Parks Canada is also revising its park management plan content list. Though the Panel recommends that these minimum contents be included in the legislation, it is not necessarily a final and complete list and may be worthy of further additions based on the Panel's and Parks Canada's ongoing work. Naturally, further plan content requirements may be added in policy.

⁶ The wording of this section tracks the Panel's revised definition of EI.

⁷ Note that the list of sections referred to in ss. 49, 50, 51, 53 of CEAA would also have to be amended to add the new s. 48.1 and clarify that it would be the Minister responsible for National Parks that would be involved in respect of issues arising under s. 48.1.

⁸ This section references the proposed new subsection 8(2) above.



Appendix D: Parks Canada Agency — Organization Chart

Note: Dotted lines refer to accountability for Business Plan through the Executive Board which is clarified by the Chief Executive Officer

*Member of Executive Board

Appendix E: Significant Aboriginal Rights Cases

The law of Canada concerning the rights of Aboriginal peoples has changed radically in the past 20 years. The Constitution Act, 1982, entrenched existing treaty and Aboriginal rights, and many of the crucial cases give meaning to that protection — but other cases do not involve the constitution at all, but expand and bring into focus rights that flow from the common law or from federal legislation. The following cases are all from the Supreme Court of Canada:

Gérin v. The Queen (1985) – the first strong declaration that the Crown has a fiduciary (trust-like) obligation in dealings with the lands of Aboriginal peoples.

Sparrow v. The Queen (1990) – clarified that the fiduciary obligation is general, and extends to any Crown dealings with Aboriginal rights.

Sioui v. The Queen (1990) – confirmed that courts will follow liberal rules of treaty interpretation, resolving ambiguities in favour of Aboriginal peoples, taking notice of historical context and facts. Treaty obligations are unaffected by the passage of time or a lack of use or enforcement.

Adams v. The Queen (1996) – established that it is possible to have constitutionally protected Aboriginal rights (to fish, for example) in places where Aboriginal title might not exist or cannot be proved.

The “VanderPeet Trilogy” (1996) – three cases that confirm that Aboriginal rights are those activities which are integral to a people’s distinctive society at the time of their first contact with Europeans. These can include commercial rights.

Blueberry River Band v. Canada (1997) – said that courts looking at surrenders and treaties will not take a tight technical approach, but will enforce the Indian understanding of the transaction, to honour and give effect to the intentions of Aboriginal peoples.

Maldvik v. The Queen (1998) – deals with obligations of the Crown under a modern treaty, the James Bay Agreement. It requires good faith consultations where Aboriginal or treaty rights are affected by government initiatives.

Delgam’uukw v. Auditor General of British Columbia. (1997) – addressed Aboriginal title. Since Aboriginal title is an interest in land within the British common law system, the “magic date” for a court to examine whether Aboriginal title exists is the date of the assertion of British Crown sovereignty in an area. The case also affirms that both Canadian law and the laws of the Aboriginal nations involved must be considered in providing definition to Aboriginal rights and title.

Marshall v. The Queen (1999) – confirmed that historical evidence and oral tradition that provide context to a transaction, as well as guide to the way the Aboriginal peoples understood the treaty is always admissible to help a court interpret a treaty. It confirmed that the Mi’kmaq have a treaty right to gain a modest livelihood by fishing.

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APPENDIX G: SUMMARY OF RECOMMENDATIONS

CHAPTER 1: A Sacred Trust

1-1. We recommend this revised definition of ecological integrity:

"An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes."

In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.

For national parks, this characteristic state must respect the following criteria:

- ecological integrity should be assessed with an understanding of the regional evolutionary and historic context that has shaped the system;
- because ecosystems are dynamic, conservation strategies should maintain or restore key ecological processes within their natural range of variability;
- ecosystems are multi-scaled and conservation should be considered at many scales. National parks are part of larger ecosystems and must be managed in that context;
- functional connections between parks and equivalent protected areas within the regional ecosystem should be maintained or restored, to allow wildlife movement;
- populations of species should be managed to levels that have a high likelihood of persistence;
- ecosystems have characteristic rates of change. Understanding rates and direction are critical to understanding the system;
- parks have a finite capacity to withstand use. Human use and facilities should be compatible with park ecosystem protection in type, amount, and timing;
- ecological integrity must be assessed and understood at a landscape scale. While ecological integrity cannot be assessed at the scale of a single forest stand, campground, or parking lot, it can be compromised at any scale. Even small scale impacts can have cumulative effects and should be considered in this light;
- the goal of conserving ecological integrity is best addressed by maintaining or restoring the diversity of genes, species and communities native to the region. It is simply consistent with the vision of integrity, which is "wholeness" — if parts are missing, the ecosystem is not whole.

CHAPTER 2: Toward a Culture of Conservation

The overriding objective behind every recommendation in our report is to firmly and unequivocally establish ecological integrity as the core of Parks Canada's mandate. To do so, Parks Canada must transmit the key message to every member of the organization and its partners that:

- ecological integrity is everyone's job;
- ecological integrity is the primary criterion to be used in all decisions;
- the purpose of national parks is to protect ecological integrity.

2-1. To assist in transmitting this message we recommend that the Minister ensure that Bill C-70, or its successor, states clearly and without qualification that protecting ecological integrity is the first priority of national parks and that Parks Canada can achieve this purpose through managing for ecological integrity. (The Panel's suggested wording for various sections of Bill C-70 is contained in Appendix C.)

2-2. In accordance with section 16 (1) of the Parks Canada Agency Act, we recommend that within a six-month time frame, Parks Canada initiate the revision of the existing draft Charter that addresses the core values of the organization as they relate to the primary objectives and core mandate. For the National Parks Directorate of the Parks Canada Agency these core values should revolve around the concept of ecological integrity. To ensure that this Charter is understood and adopted by all staff and is reflective of the primary objective, Parks Canada should adopt a bottom-up process for developing the Charter by seeking input from staff at all levels of the organization.

2-3. We recommend that within six months Parks Canada begin a process to move away from the language of business and adopt a language that emphasizes ecological integrity and conservation.

2-4. We recommend that Parks Canada develop a detailed and ongoing program for ecological integrity orientation and training, with initial delivery to be completed within 18 months by all current employees (including contract employees, co-operating associations, partners, and co-operators such as commercial operators within parks). Make this training part of every new employee's orientation package. Conduct a third-party audit of the orientation program after three years to assess the status and future needs for the program.

This basic training program is to be supplemented by more advanced and targeted training programs covering skills needed for maintaining and restoring ecological integrity. For example, a training program should be developed to strengthen the capacity of regional Service Centre staff to participate in regional and provincial/territorial co-operative management efforts by:

- enhancing skills and responsibilities in liaison and co-operative management with provincial and territorial governments, Aboriginal peoples, communities, industry and other public or private agencies; and
- providing increased training in community liaison, negotiation, and communications.

We do not feel that Parks Canada's existing structure serves ecological integrity well. We heard from park staff that they feel that the current organization does not support their fundamental beliefs about the importance of ecological integrity and that while tired of change, they would welcome changes that would move Parks Canada toward achieving its core purpose.

2-5. We recommend that Parks Canada examine and evaluate the existing structure and its implications for achieving ecological integrity requirements for national parks. In any structural re-organization we suggest the following guiding criteria be used to achieving the objectives required of ecological integrity:

- ensure that ecological integrity is central to everyone's job;
- ensure that Parks Canada is represented in regions, provinces and territories by senior parks representatives who can speak for the Parks Canada Agency in establishing agreements, partnerships, and policies in any given area;
- provide these senior representatives with the appropriate authority and professional staff that go along with the responsibility to accomplish their tasks;
- provide parks with enough staff to carry out their responsibility but at the same time ensure a co-ordination of those specialists that could work better as teams and provide leading-edge expertise to parks;
- ensure that an adequate focus in the Field Unit Superintendent's responsibilities and time is devoted to national parks;
- establish networks in discipline areas (similar to the Fire Management group) to parks;
- provide Service Centers with a clear definition of roles, responsibilities and authorities in specific fields;
- provide for clear accountability and recognition mechanisms for achieving ecological integrity.

The following recommendations arise from the need to redress existing staffing to provide a strong base for ecological integrity protection. As ecological integrity becomes central to the operations and decisions of Parks Canada, these actions may be reviewed and phased out.

2-6. We recommend that Parks Canada take steps associated with staffing and training to ensure that protecting ecological integrity becomes the primary concern of every person in the organization. Such steps include:

- use a demonstrated commitment to the mandate of protecting ecological integrity as a criterion for staffing throughout the organization;
- ensure that the majority of management positions are filled with persons skilled and trained in ecological integrity. Understanding of and experience with managing ecological integrity should be among the selection criteria for all senior managers. Senior management should also have a demonstrated prior

Appendix G: 2

commitment for the values of ecological integrity and national parks. In the short term, existing staffing should be examined, and training and transition strategies developed;

- create the position of National Science Advisor or Director General of Ecological Integrity. This position should be parallel to the position of Director General of National Parks and should report directly to the Chief Executive Officer. The person selected for the position should have proven expertise in ecosystem science and protected areas strategies, and would act as the scientific advisor to the Chief Executive Officer, be a member of the Executive Board, co-ordinate the overall national park science strategy, and manage a formal program of external outreach to universities and research agencies. We suggest the following criteria for this position:
 - at least at Master's-level degree in a field related to ecological integrity, with an understanding of relevant social science areas;
 - experience in protected areas management and research;
 - national reputation in their field (in order to work credibly with senior science representatives from other government departments and to develop partnerships with universities and other researchers);
 - an understanding and appreciation of naturalized knowledge systems;
 - an understanding and appreciation of adaptive management;
 - the ability to develop a research agenda, to provide mechanisms to incorporate knowledge into decision-making.
- ensure there is adequate science advice at all decision-making forums in the organization, including park management teams and scientific advisors to the Directors General East and West and Executive Directors of Québec and the Mountain Parks.

2-7. We recommend that Parks Canada improve accountability mechanisms within the organization to ensure progress toward the goal of protecting ecological integrity. Mechanisms include:

- revise and clarify accountability mechanisms at the park level. Specifically, we recommend that Parks Canada adopt new or revised accountability mechanisms such as park-level State of the Park Reports, budgeting and accounting principles, transparent decision-making processes, and other ideas developed in later sections of this report;
- use regular reporting mechanisms, evaluations, bonuses, raises, and awards to make all staff accountable for ecological integrity. Clarify the role and responsibility of all staff at all levels of the organization for implementation of ecological integrity, provide them with adequate professional support and hold them accountable for measurable results. Within a one-year time frame, institute an award program for excellence in work by park staff and partners towards ecological integrity.

2-8. At all levels of decision making, we recommend that Parks Canada adopt a transparent and open decision-making process including formal records of decision and a strategy to communicate the rationale for decisions.

2-9. We recommend that Parks Canada open dialogue about the management and maintenance of ecological integrity by:

- giving staff guidelines, principles and tools that enable Parks Canada to open the dialogue on ecological integrity;
- allowing alternate views to be expressed in a professional manner and respected, as evidence of positive organizational change;
- making management accountable for creating a climate of openness, critique and internal advocacy;
- adopting the adaptive management process to facilitate this free exchange of opinions;
- affirming and communicating the recognition that advocacy on issues that affect parks is necessary and expected;
- clearly communicating corresponding policy direction and guidelines to all park staff.

CHAPTER 3: Planning for Ecological Integrity

3-1. We recommend that Parks Canada adopt an adaptive management approach (as conceptualized in Figure 3-3) at both national- and park-level scales of planning and management, such that:

- the planning framework at each scale is consolidated around the main accountability tools at each tier (a strategic plan, an implementation plan and an evaluation report) and documents peripheral to this core are phased out;
- the planning system explicitly links the various components in the framework, both within and between national and park scales;
- the planning system makes increased and effective use of regional Service Centres to co-ordinate between national- and park-scale planning, management, and reporting so that ecological integrity objectives at both scales are mutually supportive. This will relieve Field Units of some of the present burden (Chapter 2) imposed by too much planning that leaves insufficient time for plan implementation, and will facilitate regional consultation and co-ordination (Chapters 7, 8, and 9);
- the planning framework provides for feedback, through monitoring and evaluation, about the adequacy of management practices for achieving ecological integrity objectives.

3-2. We recommend that Parks Canada simplify the parks planning process, similar to Figure 3-3, to:

- ensure that the legal requirement to maintain and enhance ecological integrity is carried down the entire process as the overriding priority;
- improve the efficiency of planning activities and thus free staff time for implementation;
- provide for fewer, but analogous, strategic and implementation planning and reporting cycles, with complementary, commensurate time lines, at each of national and park (regional ecosystem) scales.

3-3. We recommend that the Park Management Plan become a fundamentally new document, such that:

- it incorporates an Ecological Integrity Statement and the strategic aspects of Ecosystem Conservation Plans;
- all other planning is thus focused by the requirement to manage the ecosystem for ecological integrity first;
- the management planning process becomes, de facto, an ecosystem conservation planning process and its product, the Park Management Plan becomes, de facto, an ecosystem conservation plan;
- conservation scientists play a fundamental role on the management planning team (Recommendation 8-7).

3-4. We recommend that, with respect to strategic planning at the national level, Parks Canada establish a new strategic plan for managing the national system of parks for ecological integrity (see Recommendation 8-2).

3-5. We recommend that Parks Canada establish formal, mandatory monitoring and evaluation processes (Recommendation 6-8) at the scale of individual parks prior to each new cycle of park management planning, by requiring a report from each park about the state of ecological integrity in the park and the surrounding greater ecosystem, to:

- track progress toward the maintenance or restoration of ecological integrity in parks and in the greater ecosystems that surround them;
- assess the effectiveness of specific management actions toward achieving the vision, objectives and goals in parks and in greater ecosystems;
- monitor the implementation of new strategic Park Management Plans for ensuring the maintenance of ecological integrity;
- indicate the proposed direction and management actions to respond to the present states of ecological integrity in parks and in greater ecosystems.

This report should undergo a third-party audit.

Appendix G: 4

3-6. We recommend increased funding for renewing a planning core within Parks Canada (Recommendations 4-1 and 13-2) that is:

- competent in conservation science as well as planning for carrying out Parks Canada's mandate to maintain and enhance ecological integrity in greater park ecosystems;
- competent to meet the greater needs of enhanced consultation with the public and other agencies as demanded by ecosystem-based management.

3-7. We recommend that Parks Canada phase out separate Ecological Integrity Statements and Ecosystem Conservation Plans when they become integral to new, revised Park Management Plans (Recommendation 3-3). By this action, maintenance of ecological integrity will become the fundamental goal of park management planning, and the strategic plan will be linked explicitly to policy.

The revised Park Management Plan should include:

- the long-term ecological vision of the park in its greater ecosystem, reflecting ecological time frames, and based on the state of the ecosystem deemed representative of the natural region in which the park situated;
- a conceptual model of the park's ecological system;
- an evaluation of the park's present ecological state;
- a specific set of goals and measurable objectives that provide a long-term direction toward maintenance or restoration of ecological integrity (the incorporated strategic aspects of the Ecosystem Conservation Plan);
- a comprehensive group of indicators and performance targets related to the goals and objectives and tied to a monitoring and evaluation program;
- strategic plans for resource protection, visitor use and management, active management, and interpretation and outreach given the performance targets for ecological indicators and how each of these activities contributes to conserving or restoring ecological integrity;
- a statement about how visitor use stresses the park's ecological integrity and how such stresses are being eliminated or mitigated (Recommendation 11-3 and 11-4).

3-8. We recommend that Parks Canada provide guidelines on how to develop adequate objectives and indicators for individual parks, which will permit an effective evaluation of progress toward the vision and goals of the Park Management Plan. Conservation scientists should be part of the team that prepares the Park Management Plan. Clearly-defined and measurable objectives will assure the quality of the plan as an accountability tool and the implementation of an adaptive management approach. Formulation of objectives should take long-term outcomes into account to assess progress toward the park vision, and outline medium-term targets to implement specific actions.

3-9. We recommend that Parks Canada develop national guidelines and associated training for planners and senior managers to successfully protect and integrate the primary objective of Parks Canada's mandate into public involvement processes, that meet the following criteria:

- ensure partnerships with First Nations and incorporate Aboriginal approaches to forming partnerships;
- prior to the decision by any potential partners to participate in a specific process, they receive adequate information about the concept of ecological integrity and its implications for planning and management from Parks Canada;
- all participants agree to abide by the legislative and policy requirements respecting ecological integrity;
- all facilitators and mediators have a clear understanding of the mandate of Parks Canada with respect to ecological integrity;
- conservation scientists and other appropriate specialists from within and outside Parks Canada are active participants in the process;

- formal criteria and tests be developed to ensure that any decisions made through public involvement will uphold the maintenance and restoration of ecological integrity;
- formal evaluations of these new and innovative ways to involve the public be conducted by Parks Canada staff and third parties outside of specific processes.

3-10. We recommend that Parks Canada revise the present zoning system and methods for zoning in order to help designate, through planning, areas within parks based principally on their significance for maintaining or restoring ecological integrity and on their ecological sensitivity.

3-11. We recommend that within six months, there be an Order-in-Council to convert existing wilderness zones (Zone 2 areas) in national parks into legally designated wilderness as provided by the National Parks Act.

3-12. We recommend that the Minister seek, through Bill C-70 or its successors, to amend Section 14 of the National Parks Act to empower the Minister to make the necessary wilderness regulations rather than requiring an Order-in-Council through Cabinet Committee. We further recommend that an Order-in-Council be required to remove any wilderness designated through these regulations. Suggested wording for Bill C-70 is in Appendix C.

3-13. We recommend that Parks Canada fold the strategic components of Ecosystem Conservation Plans, with Ecological Integrity Statements, from this tier into revised Park Management Plans (Recommendation 3-3) at the strategic tier and discontinue the use of Ecosystem Conservation Plans and Ecological Integrity Statements as separate documents.

By this action, ecosystem management for ecological integrity would no longer be side-lined from the main planning process. The Panel cautions that the recommendations to phase out Ecosystem Conservation Plans and Ecological Integrity Statements must not be taken out of context. It is not our intent that ecosystem conservation planning be dropped. It is our intent that ecosystem conservation planning and ecological integrity achieve the status of a legislated role by embedding them in the Park Management Plan (Recommendation 3-3). Recommendation 3-13 cannot be implemented without also implementing Recommendation 3-3 to substantially revise the composition of management planning teams; these actions go hand-in-hand and reflect a major shift in planning processes consistent with legal requirements and policy commitments to manage principally for ecological integrity.

3-14. In an effort to move away from the language of business, we recommend that Parks Canada stop using the term "Business Plan" and refer instead to "Implementation Plans" (Chapter 2).

3-15. We recommend that Parks Canada revise the present format of Implementation (Business) Plans to also become comprehensive accountability tools for maintenance and restoration of ecological integrity. The tactical components of Ecosystem Conservation Plans should be outlined in the Implementation Plan and elaborated in individual Operational Plans for specific projects as means to achieve and maintain ecological integrity. Operational Plans should be considered appendices to the Implementation Plan, thus making explicit the links from the Guiding Policies and Principles and strategic Park Management Plans to action-oriented work plans through Implementation Plans (Figure 3-3). The Implementation Plan should describe:

- clear linkages to the strategic Park Management Plan in sufficient detail to be meaningful;
- progress to the goals described in the Park Management Plan;
- how the park will monitor implementation of aspects of the Implementation Plan related to ecological integrity;
- business and service lines that can be used to more readily distinguish the financial and human resources specifically allocated to ecological integrity with clear information on funding for salaries, goods and services, and others such as emergency funds (Chapter 13).

Appendix G: 6

3-16. We recommend that Parks Canada review the length of the cycle for implementation planning with a view to making it commensurate with the length of the cycle for strategic planning, such that each new implementation planning cycle immediately follows and is guided by new Park Management Plans. This will facilitate better linkages between strategic and implementation planning.

3-17. We recommend that Parks Canada designate stand-alone work plans as "Operational Plans" under the umbrellas of the strategic and implementation plans to facilitate better linkage between strategic directions and on-the-ground activities to achieve ecological integrity objectives. This can be done by adding Operational Plans as appendices to the Implementation Plan, thus forcing the Implementation Plan to refer explicitly to them as well as to strategic Park Management Plans.

3-18. We recommend that Parks Canada annually report about progress to maintaining and restoring ecological integrity in individual parks to provide a short-term feedback loop at the park level (Figure 3-4). A formal, mandatory Annual Plan Implementation Report should be available to the public using appropriate public involvement mechanisms. (This report could be simply a compendium of the annual reports on individual Operational Plans.) The Annual Plan Implementation Report should be short and designed to facilitate easy "roll up" into a mandatory five-year report on the state of ecological integrity in the park (Recommendation 3-5) prior to the beginning of the next park management planning cycle.

3-19. We recommend that the basic elements of a new National Strategic Plan should be similar to those proposed for revised Park Management Plans (see above), but scaled to the national level, and particularly include:

- the strategy that Parks Canada will follow to best position and manage its protected areas in relation to those of its neighbours in a greater, national protected areas network (Chapters 8 and 9);
- the targets for verifiable indicators that the greater protected areas networks, of which national parks are a component, adequately protect Canada's ecological integrity and biodiversity;
- the extent to which national-level indicators of ecological integrity meet targets.

3-20. With respect to implementation planning at the national level, we recommend that Parks Canada revise the Corporate Plan along lines conceptually similar to those suggested for Implementation (Business) Plans (Recommendation 3-15), especially so that business lines and service lines better reflect the principal objective of national parks with respect to ecological integrity and to better track the allocation of resources to the maintenance and restoration of ecological integrity. Develop Corporate Plans to achieve national-level targets for indicators of ecological integrity.

3-21. With respect to evaluation and reporting at the national scale, we recommend that Parks Canada continue to produce the State of the Parks Report, but:

- plan ahead to eventual revision and adaptation of the State of the Parks Report to address progress to the goals and objectives of a new strategic plan for managing the system of national parks for ecological integrity at the national-level (Recommendations 3-5 and 3-19);
- better align strategic planning with evaluation and reporting to ensure up-to-date information is available at the beginning of each new planning cycle. Consider changes to the National Parks Act that would eventually bring the required report production cycle (currently every two years) in line with the new cycle of strategic planning at the national level, which will necessarily be longer (minimally five years). In the three-year gap created by extending the reporting cycle for the State of the Parks Report from two to five years, the new, mandatory Annual Plan Implementation Reports at the park level (Recommendation 3-18) and annual reports on Corporate Plan implementation (as required now by the Parks Canada Agency Act) would fill the need for more frequent public reporting locally and nationally;
- ensure that the State of the Parks Report is reviewed by the Standing Committee on Canadian Heritage.

3-22. To those ends, we recommend that Parks Canada create an enhanced role for regional Service Centres to ensure that national-, regional- and park-level planning, implementation, evaluation and reporting is co-ordinated and mutually supportive (Chapters 2 and 4).

CHAPTER 4: Building Capacity for Learning and Education

4-1. We recommend that Parks Canada significantly upgrade internal learning capacity, including the natural sciences and social sciences, planning, interpretation, environmental assessment, and the capacity to effectively build regional liaisons (Figure 4-1).

This upgrade will require an investment similar to the magnitude of the national park allocation of the Green Plan. Parks Canada cannot hope to understand and manage for ecological integrity with current level of investment in science expertise. Upgraded internal science capacity is required at all levels — the National Office, regional Service Centres and park level. The Panel estimates the cost of this significant upgrade in science capacity to be \$28 million per year in additional funding (Chapter 13).

In the Panel's opinion, improving Parks Canada's science capacity is a critical step. Methodological issues such as monitoring, data management and research will automatically improve once science capacity is upgraded. (These issues are discussed further in Chapter 6).

4-2. We recommend that Parks Canada manage and upgrade its science capacity by:

- developing a National Science Strategy including external national and regional Scientific Advisory Boards to guide national park use of science, including acquisition and evaluation of scientists, funding of science, and standards such as peer review;
- revitalizing the regional Service Centres as regional Ecological Centres to support park programs and develop and implement regional integration programs;
- creating a clear path for internal upgrading of existing national park staff to attain advanced degrees and help fill the science needs of Parks Canada, including a formally supported education leave program (estimated cost \$2 million per year to allow 20 staff to take advanced degrees at one time);
- hiring scientific staff positions using external competitions, to rapidly upgrade scientific capacity and access to the best possible expertise.

4-3. We recommend that Parks Canada significantly increase formal contact with Canadian universities by establishing a system of 10 co-operative study units specializing in ecosystem science and protected area management (estimated cost \$3 million per year, Chapter 13).

These units should include partnerships with conservation-mandated agencies such as Environment Canada, Canadian Forest Service, Canadian Wildlife Service, as well as appropriate provincial and territorial agencies. Parks Canada should seek to establish Chairs of Protected Area Management including ecological integrity, human dimensions, and interpretation, financed through the creation of new research Chairs announced in the October 1999 federal Speech from the Throne.

The role of these co-operative study units would be to connect Parks Canada to the larger research community, provide science advice to park managers, provide training for Parks Canada staff, and conduct high quality research on key issues. The development of co-operative study units could be further enhanced by:

- inviting universities to submit proposals to a national program, which would be partially funded by Parks Canada. Host universities should be chosen from those that have a diverse faculty with a commitment to conservation research, a history of Parks Canada involvement, and a supportive administration willing to modify accounting and tenure practices to ensure the unit's success. Each university participating in co-operative study units would have a Unit Chair who would be jointly supported by Parks Canada, its partners and the host university, with respect to salary and grants to support research and students;
- creating a new National Science Advisory Committee, headed by the National Science Advisor or Director General of Ecological Integrity (Chapter 2) and including the Unit Chairs;

Appendix G: 8

- forming partnerships with other relevant conservation-oriented governmental and non-governmental agencies with mutual interests (such as Environment Canada, Natural Resources Canada, North American Wetlands Council of Canada, Model Forests, World Wildlife Fund) in supporting co-operative units. This approach has been used successfully by the United States National Park Service;
- inviting Aboriginal peoples to be an integral part of co-operative units, to provide expertise and open lines of communication through joint understanding of park ecosystems;
- emulating existing successful models, including the NSERC/SSHRC Industrial Chair program. A possible template could be the NSERC Industrial Chairs sponsored by the Canadian Wildlife Service (Environment Canada), which resulted in the Atlantic Co-operative Wildlife Ecology Research Network.

4-4. We recommend that Parks Canada facilitate contact with the larger university and education community by:

- amending Parks Canada's financial procedures to allow grants to university graduate students and researchers, as opposed to contracts;
- establishing a student internship program to provide seed funding for research in protected areas and increase the profile of Parks Canada to all students (39 graduate internships — one for each existing park — of \$10,000 each, and 39 university and high school internships of \$3000 each for a total cost of approximately \$500,000/year. This figure will increase as new parks are added to the national system);
- requiring all parks to post updated lists of their key research needs on the Internet;
- revising the current national park research permit to create a nationally standard document with clear rules and procedures designed to assist researchers, and recognize the regional Service Center as the official links with universities;
- having accessible and well-documented data bases for use by external researchers;
- using the proposed "Exchanges Canada" presented in the October 1999 federal Speech from the Throne to introduce students to parks throughout Canada.

4-5. We recommend that Parks Canada re-establish and/or revitalize memoranda of understanding or research agreements with government research agencies to expand research capacity and ensure that joint projects receive stable funding.

4-6. We recommend that Parks Canada establish partnership agreements with interested Aboriginal peoples, enabling national parks to co-operate with Aboriginal peoples to increase knowledge and understanding of ecological integrity in national parks and historic sites.

4-7. We recommend that Parks Canada work with partners in provincial, territorial, and municipal park systems, universities, non-governmental organizations and the private sector to collectively fund the systematic establishment of regional science advisory committees, and to participate in annual "Parks Research Forum" series across Canada, based on the Ontario model.

CHAPTER 5: The Need for Active Management and Restoration

5-1. We recommend that Parks Canada formally reaffirm that active management is an important part of conserving ecological integrity in all national parks. Active management can be used as a fundamental conservation tool as long as the following conditions are met:

- the goals for active management are explicitly defined and reviewed by knowledgeable persons;
- active management occurs within the context of an adaptive management framework;
- the active management program is formally evaluated at fixed intervals.

5-2. We recommend that, in appropriate parks, Parks Canada actively manage to restore fire, within an adaptive management framework, to 50 per cent of the long-term average, using the following means:

- create a fire restoration fund to complete the task of re-establishing this essential natural process to national parks. The level of funding should be based on internal Parks Canada calculations to restore fire to 50 per cent of the long-term average through a combination of prescribed fire and zoning. (Cost: \$6 million per year in addition to the current levels of funding);
- make fire restoration a management accountability by setting fire restoration targets as part of the Park Management Plan in appropriate parks as was done in the Banff Management Plan;
- where possible Parks Canada should work with Aboriginal peoples to understand the history of Aboriginal fire use and its application to prescribed fire.

5-3. We recommend that Parks Canada be active in species restoration and that Parks Canada must have the required new resources.

5-4. We recommend that Parks Canada establish a set of guidelines for site restoration, in order to guide the many questions that remain at the field level regarding restoration. The guidelines should include targets for acceptable levels of toxic substances, restoration of landforms and hydrological patterns. The guidelines should also include guidance of the removal or remodeling of historical structures in order to meet site rehabilitation needs.

5-5. We further recommend that Parks Canada establish a dedicated site restoration fund of \$5 million per year to ensure that funds are available and that restoration is not directly competing with other immediate priority issues. The fund should be allocated based on a national priority list for site restoration in national parks. As there are a limited number of sites that need restoration, the fund can be re-evaluated after five years to see if it has met its objective.

5-6. We recommend that Parks Canada develop a national policy and guidelines on the definition of invasive alien species and appropriate criteria for control and removal methods.

5-7. We further recommend that Parks Canada improve the management of alien species by working with local experts, museums, universities and other government departments to routinely monitor for new species invasions. In addition, improved management of alien species will result from implementing recommendations made in Chapter 12 concerning the elimination of non-native plant species in parks. To foster public support for the elimination of alien plant species from national parks, we recommend that Parks Canada design and implement interpretive programs and other information as recommended in Chapter 10.

5-8. We recommend that Parks Canada establish guidelines for the management of any harvested populations in a park. We recommend that no harvest be allowed to occur unless these guidelines are met and that any harvest under the jurisdiction of Parks Canada that does not meet these principles should be discontinued. We note that some harvest regimes within some national parks are not under the jurisdiction of Parks Canada and thus Parks Canada could advocate a position in these cases.

We recommend the following principles for harvesting within national parks:

- all harvest levels should be based on an ongoing assessment of basic population parameters, including population size, sex ratio, age class distribution and age-specific birth and mortality rates;
- all harvested population should have an ongoing assessment of age-specific and sex-specific harvest rates as well as location;
- for all harvested populations, there should be areas of the park where harvest is not permitted, designed to act as benchmark areas.

5-9. We recommend that Parks Canada confirm the role for control of hyperabundant species in national parks through active management, to maintain or restore ecological integrity, as long as the following conditions are met:

- the reasons for the hyperabundance are well understood;
- there are clear objectives and numerical targets for the control program;
- the impacts of the control measures are predicted;
- there is a monitoring system in place to examine the causes of hyperabundance, the dynamics of the population being controlled and the predicted impacts of the control measures;
- the management program is conducted under an adaptive management framework where the original assumptions are subject to review.

CHAPTER 6: Tools for Understanding and Assessing Ecological Integrity

6-1. We recommend that Parks Canada develop national guidelines for ecological inventories: inventories specifying the type, scale, resolution and frequency of the information required. All parks should then review their current inventories against these guidelines.

6-2. We recommend that Parks Canada incorporate the costs of developing an adequate ecological inventory as part of new park establishment. As a general rule, the average cost of an inventory will be approximately \$250,000 per park to cover a basic inventory of vegetation, topography, linear features, invertebrates and vascular plants. There are currently 14 unrepresented natural regions and five northern parks with inadequate basic inventories. The total cost to complete a basic inventory of each of these (14 new parks and five existing northern parks) would be \$4.75 million.

6-3. We recommend that Parks Canada establish an emerging issues research fund of \$1 million per year to deal with threats to ecological integrity that occur outside the normal management planning and business planning cycles. The National Office should administer the fund, with proposals for access based on peer review and expressed emergency need.

6-4. We recommend that Parks Canada integrate monitoring within the management accountability framework. Specifically, we recommend that Parks Canada:

- explicitly recognize monitoring as a tool for adaptive management;
- the lack of a complete suite of indicators or the inability to measure specific indicators (because of methods or costs) are not valid excuses to delay monitoring. All parks should begin reporting on at least some ecological integrity indicators immediately;
- at all levels of Parks Canada, link accountability to both implementation of a monitoring program and the results (outputs) obtained from the monitoring program.

6-5. We recommend that Parks Canada further develop the program for ecological monitoring and assessment in national parks. Specifically, we recommend the following actions:

- appoint a permanent, full-time national Ecological Integrity Monitoring Co-ordinator to assist and guide parks through the development and implementation of monitoring programs (Figure 4-1 in Chapter 4). This must include the development of an on-line catalogue of protocols that can be used by individual parks. Develop customized protocols for each park as needed;
- in each park, review and evaluate existing monitoring programs based on the national monitoring framework to identify current monitoring projects that fit the framework or can be modified to fit the framework and those that should be discontinued;
- base monitoring programs on a hypothesis of how monitored elements will change as a result of stresses;
- re-organize the existing ecological monitoring framework around the model of principles, criteria, indicators and targets;

- develop a clear understanding on which indicators of ecological integrity can be aggregated to national-level reporting; and which are unique to a given park and should be assessed at the park level. Develop corresponding mechanisms for measuring and aggregating these indicators;
- incorporate both quantitative and qualitative techniques in monitoring, as they best fit the measurement of the indicators;
- develop specific methods for incorporating naturalized knowledge and scientific knowledge to improve the comprehensiveness of monitoring programs;
- design monitoring protocols simultaneously with data management and retrieval strategies;
- ensure all monitoring protocols and the design of the basic program are subject to external peer review.

6-6. We recommend that Parks Canada support ongoing regional and national monitoring initiatives with monitoring data at the park level by:

- establishing a dedicated ecological integrity monitoring envelope of \$3.9 million per year to allow parks to proceed with the development of their essential monitoring programs. This will vary from park to park but is based on an average cost of \$100,000 annually for each park;
- working with other agencies, industries, universities, non-governmental organizations, Aboriginal peoples, park visitors and community groups for data collection and reporting. Where appropriate and feasible, design monitoring protocols for application (and in consideration of) across park boundaries and monitor accordingly;
- establishing a resource library of measurement protocols and targets (also called verifiers) for parks within their ecoregion and across regions. Co-ordinate development of measurement protocols and verifiers with other local and regional monitoring programs including provincial and federal state of the environment reporting and local, regional and national state of the forest reporting (such as Model Forest Criteria and Indicator projects).

6-7. Correct the absence of an atmospheric monitoring program by establishing a network of six monitoring stations in national parks, in co-operation with the Atmospheric Environment Branch of Environment Canada.

For sites with no existing instruments, the cost to establish a base monitoring station would be \$200,000. Annual operating costs would be approximately \$150,000 per year including staff. The total program costs would be \$1.2 million for establishment and \$1.2 million per year for operations. If split with the Atmospheric Environment Branch of Environment Canada, operating costs would be \$600,000 for establishment and \$600,000 per year for Parks Canada.

6-8. We recommend that Parks Canada establish an ongoing park-based monitoring report of the state of each individual park's ecological integrity (see for example the State of Greater Fundy Ecosystem Report or Waterton's State of the Crown of the Continent Report). As outlined in recommendation 3-3, these reports should be done every five years, prior to management plan review. In addition, these reports should undergo a third-party review/audit and be made publicly available as part of an annual public reporting process. In using this report, the revised Park Management Plan should demonstrate how the proposed direction and specific management actions respond to the state of ecological integrity within the park (Chapter 3).

The park-based State of the Park Report should include:

- a description of how the ecosystem functions and a list of the key drivers;
- a description of the current ecosystem conditions and stressors;
- a summary of changes of key indicators over time;
- an overview of the state of the regional ecosystem including a discussion on the most significant regional stressors;
- results of past management practices;

Appendix G: 12

- a projection of future conditions in the absence of management changes;
- a proposed park zoning system based on ecological sensitivities;
- responses required by the management plan.

6-9. We recommend that Parks Canada continue to produce the national-level State of Parks Report with the following changes. The Minister should affirm that the primary purpose of the State of the Parks Report is to report on ecological integrity, regardless of whether the State of the Parks Report includes other integrated information. In addition the State of Parks Report should:

- be subject to a third-party scientific review and audit;
- be reviewed by the House of Commons Standing Committee on Canadian Heritage.

6-10. We recommend that Parks Canada develop a formal and rigorous data collection approach for State of the Parks Reports. Specifically we recommend that Parks Canada:

- define linkages between park-level monitoring and national-level monitoring;
- develop common methodologies and protocols that are ecologically appropriate to each park but capable of being aggregated to national-level reporting;
- establish a national database for national State of the Parks Reports;
- dedicate staff at the National Office to the task assembling a national database for State of Parks Reports.

6-11. In recognition that data and information are different, we recommend that prior to any data collection program, Parks Canada formally define what information is required for management. Formally define information needs by asking what is required, what level of precision is required, how current does the information need to be and what scale of resolution is required. The information needs analysis should be conducted in all parks using the model established in Jasper National Park (Thomlinson, 1997).

6-12. We recommend that Parks Canada establish a system-wide data management and archiving system. These could include:

- establishing guidelines and standards that will ensure long-term survival of data and documentation and easy retrieval for all potential users;
- establishing national guidelines and standards for data repositories and for metadata description of all data sets;
- ensuring copies of all documents related to park management and ecosystem conservation are deposited at Parks Canada's National Documentation Centre. Develop a National Data Repository to complement the Documentation Centre;
- each park should ensure that in-house and contracted research data and reports are deposited at the Parks Canada National Documentation Centre and the regional Service Centres. Establish guidelines for the deposition of natural specimens at appropriate facilities.

6-13. We recommend that Parks Canada make Field Unit Superintendents responsible for the protection of park ecological data and documentation. Through regular audits, evaluate the state of ecological data sets and documentation. As a first step, Parks Canada should have Statistics Canada conduct an audit on data management and storage mechanisms.

6-14. We recommend that Parks Canada report the condition of ecological data sets in the national parks in the national- and park-level State of the Park(s) Reports.

6-15. In all parks, design data management plans to organize, protect and make data accessible. These plans should be considered a key product of the ecosystem conservation program, while Park Management Plans should include the park's data management strategy.

6-16. We recommend that Parks Canada assign professional geographic information officers to each national park, to maintain a professional database and ensure public access. These data managers should work in close partnership with external partners in regional Conservation Data Centres.

6-17. We recommend that Parks Canada invest in the existing network of Canadian Conservation Data Centres, through direct funding, by:

- investing or becoming a partner with Conservation Data Centres. Parks Canada could ensure standardization and further the cause of ensuring the availability of conservation data in Canada. Parks Canada could also contribute to the evolving standards for spatial conservation data (estimated cost: \$300,000 per year at \$50,000 per centre);
- assist the development of Conservation Data Centres in the Yukon, Nunavut and Northwest Territories through provision of funding and expertise. In the long term, such regional databases will be an invaluable asset to Parks Canada. (Estimated cost: \$150,000 per year at \$50,000 per centre.)

6-18. We recommend that Parks Canada make suitable Parks Canada databases publicly available on the Internet. This will ensure data standards are maintained and allow researchers to conduct additional analysis that can benefit Parks Canada.

6-19. We recommend that Parks Canada enhance its ability to manage and share information at the National Office, Service Centres and national parks, so that Parks Canada can share data and information "vertically" within the organization and "horizontally," at appropriate scales, with external partners, as follows:

- the National Office requires the enhanced ability to share information with other federal departments and international agencies, and to provide information about national ecological integrity issues to Service Centres and national parks;
- Service Centres require the enhanced ability to share information with provincial ecosystem management agencies, non-governmental organizations, and private organizations, and to support data management and analysis in national parks;
- national parks require the ability to share information with partners on the scale of the greater ecosystem, and to send critical information up through the Parks Canada system.

6-20. We recommend that Parks Canada become an active partner in ongoing national efforts to establish a Biodiversity Resource Network. Parks Canada's involvement could range from cataloguing its databases for network access to participating in the design of the Network's structure to ensure the Network will meet Parks Canada's needs.

CHAPTER 7: Working with Aboriginal Peoples

The Panel believes there is a genuine desire within Parks Canada to make progress toward integrating Aboriginal naturalized knowledge and values into park management, as evidenced by the creation of the Aboriginal Secretariat and a growing number of specific co-operative endeavours at the park level. But all this is taking place under the caveats which govern Canada's policies dealing with claims and First Nations, and patterns of asserting rights through court claims. The Panel therefore proposes that the policies and actions recommended below be implemented without prejudice by either party's positions or interests that can be expressed through legal means or through the claims process.

These recommendations are offered in the spirit of friendship and responsibility for ecological integrity. We acknowledge that the actions embodied in some of these recommendations demand substantial funding and long-term commitment. We believe that Parks Canada will be substantially stronger and more capable to protect ecological integrity with the help and support of Aboriginal peoples.

7-1. To foster the development of relationships based on trust and respect between Parks Canada and Aboriginal peoples, we recommend that Parks Canada initiate a process of healing between Aboriginal peoples and Parks Canada.

Through this process Parks Canada will:

- recognize that the interpretation and acknowledged history of national parks must reflect the past and present occupation and use by Aboriginal peoples;
- recognize the historical presence, occupation and use by Aboriginal peoples as an inherent component of the greater park ecosystems of national parks;
- solicit Aboriginal peoples' involvement in Parks Canada's activities;
- sponsor a series of healing conferences to begin the process of healing, moving from confrontation to collaboration. Note that by "sponsoring" we mean "fostering" or "facilitating," not necessarily "organizing." The notion of true partnership can begin with the respectful meeting of the two sides in a mutually acceptable healing process;
- acknowledge that the healing process offers potential for research and co-operative ventures.

7-2. We recommend that Parks Canada adopt clear policies to encourage and support the development and maintenance of genuine partnerships with Aboriginal peoples in Canada.

Through these policies, Parks Canada will:

- enhance its commitment to Aboriginal peoples by providing the newly-created Aboriginal Secretariat with the resources required to stimulate expressions of genuine partnership at the local, regional and national levels (see Chapter 13 for more discussion regarding funding of the Aboriginal Secretariat). Parks Canada will initiate national, regional and site projects with Aboriginal peoples, which will create an atmosphere of co-operation;
- enhance relationships with the historical occupants of national park lands;
- re-affirm that no new national parks will be established without the involvement of First Nations of the area.

7-3. We recommend that Parks Canada, together with Aboriginal communities, develop mutually-reinforced educational projects that will lead to better mutual understanding and joint action toward protection of ecological integrity in national parks.

Through these educational projects Parks Canada will:

- provide opportunities for park staff to learn the history and culture of the Aboriginal peoples in their areas;
- give specific mandates to Field Unit Superintendents and adequate information about the Aboriginal history of the region that will enable them to initiate dialogue with the Aboriginal peoples of the area;
- work with Aboriginal people to develop an outreach program to Aboriginal communities, schools and First Nation governments;
- as part of the outreach and awareness program, support the cultural translation of parks materials, including publishing materials in the local Aboriginal language, and using Aboriginal names for places and species in materials published or printed in English, French and other languages;
- as a sign of respect, encourage the use of Aboriginal names for places, plants and animals;
- acknowledge and integrate the knowledge and experience of Aboriginal peoples into efforts to conserve the ecological integrity of Canadian national parks;
- work together with Aboriginal peoples to re-integrate Aboriginal harvest in national parks, on a case-by-base basis, to mutually acceptable levels based on traditional use and the common goal of protecting ecological integrity, including the mutual determination of areas that will remain free of any harvest (Chapter 6).

7-4. We recommend that Parks Canada ensure protection of the current cultural sites, sacred areas and artifacts that are under the auspices of Parks Canada.

As part of this process, Parks Canada will:

- return to First Nations all sacred artifacts and human remains currently in Parks Canada's possession, using proper ceremonies and rites;
- negotiate agreements for the use of Aboriginal artifacts in education and interpretive programs;
- work with Aboriginal peoples to create a secure and private inventory of sacred areas, so that they can be better protected;
- facilitate the execution of ceremonies and rites that Aboriginal peoples believe necessary for their culture;
- empower and enable First Nations people to tell their own stories in the parks, including direct participation in interpretive program planning and delivery;

CHAPTER 8: National Parks In The Canadian Protected Areas Network

8-1. We recommend that the Minister seek provincial and territorial co-operation on finishing, by the end of 2003, the implementation of the Statement of Commitment to Complete Canada's Networks of Protected Areas, endorsed by the Tri-Council of Environment, Parks and Wildlife Ministers in 1992; work towards a comprehensive national protected areas system plan based on co-operation between the Government of Canada, provinces and territories.

The Panel has not identified costs associated with this multi-jurisdictional recommendation.

8-2. We recommend that Parks Canada, in co-operation with other jurisdictions, complete a nation-wide protected areas gap analysis that will guide completion of the national protected areas system, of which national parks represent an essential component. Base the gap analysis on the principles of conservation biology and the maintenance of ecological integrity (Recommendation 3-4).

8-3. We recommend that the Minister expand the national park system to include ecological representation of all 39 natural regions as defined by Parks Canada. We recommend that the Minister ensure sufficient funds are allocated for new park establishment, and that new parks have sufficient funds for planning, operations and ecosystem management, without reducing funds of existing parks (Recommendation 13-4).

8-4. We recommend that Parks Canada negotiate park establishment agreements that give the highest priority to maintaining ecological integrity by seeking boundaries that meet ecological integrity objectives. Ensure regional co-operation measures are in place to support ecological integrity objectives.

8-5. We recommend that Parks Canada improve local support and future regional co-operation for candidate park sites by:

- promoting a common vision, with the province or territory, for land use in the prospective greater park ecosystem, within which a new national park will play a key role;
- facilitating agreement on a common greater ecosystem vision and park ecological integrity goals among its negotiating partners and the public;
- showing how complementary conservation objectives for surrounding lands can assist other jurisdictions in meeting their mandates;
- demonstrating how maintaining ecological integrity and appropriate visitor use will support diversified local economies;
- directing more human and financial resources toward First Nations and local communities to help them assess the impacts and secure the benefits of new national parks.

8-6. We recommend that Parks Canada increase the resources available to conduct biophysical inventories and greater park ecosystem analyses, to ensure that proposed park boundaries are based on the best available conservation science (Recommendations 6-2 and 13-2).

Appendix G: 16

8-7. We recommend that Parks Canada appoint conservation scientists to new park establishment negotiating teams in order to help provide convincing arguments for boundaries based on ecological integrity criteria. Ensure that park planners and conservation scientists who participated in the park establishment phases are available to take part in new park management planning efforts (Recommendation 3-3).

8-8. We recommend that Parks Canada reach agreement with the provinces, territories and other federal departments to use their legislative powers to withdraw candidate national park sites from development as early as possible to preserve their ecological integrity during the planning process. For example, with respect to the boreal forest, urge the responsible governments not to issue timber or other development permits in candidate park sites on federal lands (as recommended by the Senate Subcommittee on the Boreal Forest in *Competing Realities: The Boreal Forest at Risk*, 1999).

CHAPTER 9: From Islands to Networks

9-1. We recommend that the Minister work with the provinces and territories to protect the ecological integrity of the national, provincial and territorial network of protected areas through formal agreement. In developing the agreement, include First Nations governments, municipalities, non-government organizations and industry as partners in the discussions.

We recommend that the Minister initiate a federal inter-departmental memorandum of understanding to support the maintenance of ecological integrity of national parks by ensuring consistent policies and plans with respect to lands under federal jurisdiction in greater ecosystems that include national parks.

9-2. We recommend that the Minister requests the Government of Canada to use existing federal government authority within its jurisdiction regarding fisheries, endangered species, migratory birds, long range air pollution, navigable waters and environmental impact assessment to support the maintenance of ecological integrity in national park ecosystems. (A similar action was also recommended with respect to boreal forest management by the Senate Subcommittee on the Boreal Forest, 1999.)

9-3. At the provincial and territorial level, we recommend that Parks Canada undertake regular and continuing dialogue among senior executives of federal, provincial and territorial agencies responsible for land and resource management to support improved co-operation on the maintenance of ecological integrity in national parks and other protected areas. For example:

- encourage the establishment of co-operative planning structures to address regional integration of national parks. When such an inter-agency co-ordination structure is created, focus on providing guidance and resources needed to sustain on-the-ground efforts, rather than on imposing a new hierarchy to oversee all aspects of work;
- support adoption of provincial legislation on conservation easements where it is absent;
- participate in regional sustainable development strategies and in regional management plans where they may affect a national park's ecological integrity. Promote the maintenance of biodiversity and ecological processes within greater park ecosystems as underlying principles of these strategies.

9-4. We recommend that Parks Canada, in partnership with the provinces and territories where appropriate, improve regional co-operation with Aboriginal peoples in two ways:

- use co-operative management arrangements set out in existing land claim agreements or treaty provisions, to work with First Nations on maintaining ecological integrity in greater park ecosystems.
- where land claim agreements do not exist, explore ways to establish other arrangements such as memoranda of understanding, joint advisory bodies, or other arrangements to provide an interim means of maintaining ecological integrity, without prejudice to future land claim agreements.

9-5. We recommend that Parks Canada increase its participation in specific local resource management arrangements with provincial or territorial agencies that have jurisdiction in greater park ecosystems. Systematically participate in municipal and regional government planning and regulatory processes. Adopt a supporting role in the conservation of lands around national parks by:

- initiating studies of habitat protection opportunities outside park boundaries in greater park ecosystems and beyond. Co-operate with neighbouring jurisdictions to provide supplementary wildlife habitat outside of park boundaries;
- working with neighbouring jurisdictions and industry to develop co-ordinated access management plans (such as road and trail density standards) on lands in and around the park;
- working with neighbouring jurisdictions and industry to develop resource use or operating conditions on lands around national parks that support the maintenance of ecological integrity and address industry requests for secure tenure.

9-6. We recommend that the Minister launch a national partnership program to protect the ecological integrity of national parks, by establishing a Partnership Fund of \$20 million per year.

Apply the Partnership Fund to a broad range of co-operative agreements to help maintain the ecological integrity of national parks and other federally administered conservation areas, such as Canadian Heritage Rivers. The Panel recommends that the Fund be administered by Parks Canada and that:

- a board be appointed to make recommendations on the criteria for the Partnership Fund, the annual distribution of grants, and performance measurement;
- the Fund include support for a full range of co-operative arrangements, acquisition of wildlife habitat, conservation easements, industry and private landowner partnerships, participation by Aboriginal peoples and non-governmental organizations;
- the Government of Canada seek matching private funding, for example through private land trusts or industry;
- the Fund be competitive in nature and focused on measurable results toward maintaining the ecological integrity of the national park system and other federally-administered protected areas;
- as part of the Partnership Fund initiative, publish national guidelines for establishing co-operative management arrangements, including co-financing, that support the maintenance of ecological integrity.

We recommend that the key target for the \$20 million Partnership Fund be to support co-operative agreements for all existing and proposed national parks. The Fund could secure key supplementary habitat around national parks and also help sustain co-operating associations. Following new park establishment, the Partnership Fund could help secure appropriate community benefits from new parks, for example training or development of services that support the maintenance of ecological integrity.

9-7. We recommend that Parks Canada use the full range of existing regional co-operation models to enhance maintenance of biodiversity and ecological processes in the greater ecosystem of each national park. Evaluate the effectiveness of each model for its potential contribution to land use change in support of maintaining ecological integrity. Example models include:

- Biosphere Reserve (such as Waterton and Riding Mountain);
- special management zones (Muskwa-Kechika region of British Columbia);
- Model Forest (such as Fundy and Jasper);
- "Inhabited Forest" (La Mauricie);
- greater ecosystem planning projects (Fundy);
- regional planning commissions or advisory boards.

9-8. We recommend that Parks Canada develop and support partnerships with First Nations, conservation groups, co-operating associations and the business community to assist in a variety of research, monitoring and public education activities in support of maintaining ecological integrity in greater park ecosystems.

Appendix G: 18

9-9. We recommend that Parks Canada develop partnerships with charitable land trusts to secure habitat adjacent to Canada's national parks, in co-operation with private landowners to acquire critical habitat adjacent to national parks or using conservation easements to create zones of co-operation around parks.

9-10. We recommend that the Minister require Parks Canada to maintain and enhance the ecological integrity of the parks by working in co-operation with adjacent landowners, and by participating in regional land use planning, environmental assessments, and other decision-making processes where outcomes are reasonably expected to affect the ecological integrity of a national park.

9-11. We recommend an amendment to the National Parks Act to incorporate a consequential amendment to the Canadian Environmental Assessment Act, requiring the Minister responsible for national parks to undertake an environmental assessment when adverse environmental impacts on a national park are expected to occur. (Such an assessment could be done on the initiative of a request by a provincial or territorial government, members of the public, or on the Minister's own initiative. The federal Environment Minister would retain authority to require an environmental assessment under an existing provision of Canadian Environmental Assessment Act.) Suggestions for specific wording of the National Parks Act are contained in Appendix C.

9-12. We recommend that the Minister advise the government of Canada to amend the Income Tax Act to exempt ecological gifts from capital gains tax and allow for the part sale/part donation ("bargain sale") of land.

9-13. We recommend that Parks Canada use the State of the Parks Report to measure progress toward the implementation of those portions of the Canadian Biodiversity Strategy that are within Parks Canada's mandate.

CHAPTER 10: Interpretation and Outreach

10-1. We recommend that Parks Canada add ecological integrity to the "Statement of Purpose for Interpretation and Outreach" as the core purpose of interpretation and outreach. In order to formally entrench the importance of ecological integrity in interpretation, this Statement should be backed by a clear policy that all national, regional, and individual park publications, interpretation programs and facilities reflect the ecological integrity obligation.

10-2. For each park, we recommend that Parks Canada develop an ecological integrity interpretation and outreach strategy that confirms ecological integrity as the prime objective, presents clear and consistent messages about ecological integrity, balances plans for both interpretation and outreach, and has measurable goals and objectives that can be evaluated on a regular basis (for example, in Implementation Plans or State of the Park Reports).

This strategy requires the following elements:

- programs that reflect a focus on ecological sustainability in each park, including messages about the design or retrofitting of infrastructure facilities to reflect Parks Canada's commitment to ecological integrity;
- a content analysis of each park's interpretation program (including museum displays, information signs, brochures, presentations) to measure the degree to which ecological integrity is being communicated;
- research on the reasons for low visitor involvement in interpretation activities and subsequent actions to increase involvement;
- interpretation programs with a focus on outdoor experiences and learning;
- integration of natural history education and broader information on the whole national park system, present and future challenges and opportunities, dissemination of literature, the results of scientific research in both natural and social sciences, and visitor research information;

- programs that include messages that accurately discuss human/animal conflicts, visitor use patterns, and the implications for ecological integrity.

10-3. We recommend that Parks Canada make essential interpretation information available to all park visitors at no charge (excluding park entrance fees).

10-4. We recommend that Parks Canada expand national parks interpretation programs to reinforce efforts aimed at traditional target audiences and to include new strategic target audiences and media. Support strong interpretation programs in terms of personnel, budget, and training. Acknowledge and support the professional status of those who work in interpretation through a national training program focusing on ecological integrity, funding for research and development of presentation programs, and a process for career advancement. Provide funds for interpretation and outreach programs for research, staff, and renewal of these programs to meet interpretation objectives. (Chapter 13.)

This would entail:

- working in collaboration with tourist operators and other visitor service providers to provide pre-trip information with a strong ecological integrity focus via the Web, maps, audio-tapes, CD-ROMs, video-tapes, and other media;
- in each park that contains one or more park communities, developing an interpretation program that is aimed explicitly at park community residents and their special relationship to ecological integrity. The linkages between interpretation and park residents should focus on environmental stewardship and working toward developing environmentally-friendly communities;
- promoting ecological integrity as the concern of all Parks Canada staff. Ensure that all staff are involved, empowered, and trained regarding communicating goals, objectives and messages, particularly as they apply to ecological integrity. Communicate the ecological integrity mandate more effectively within Parks Canada as a whole and especially at the individual park level;
- developing an education program on ecological integrity, aimed at politicians and other decision-makers in the federal government and other levels of government;
- developing interpretation and outreach programs specifically aimed at audiences in the regions surrounding national parks, including school systems, corporations, local governments, regional residents and others;
- making integration of Aboriginal history, culture, and relationship to the land a major priority in interpretation programs. Work with Aboriginal communities to allow Aboriginal peoples to tell their own stories and to build understanding and trust concerning traditional Aboriginal activities in national parks;
- focusing interpretation concerning ecological integrity on young people and educators, particularly through the formal curriculum;
- setting up programs and activities to bring national parks and their ecological integrity issues to major Canadian cities, particularly through collaboration with municipal parks departments;
- developing interpretation and outreach programs specifically tailored to businesses, corporations and industry associations (such as the Canadian Pulp and Paper Association, the Canadian Association of Petroleum Producers or the Canadian Tourism Commission) to communicate the need to protect ecological integrity in national parks through sustainable activities outside of national parks;
- providing funding for research and development of the Internet and other media.

10-5. We recommend that Parks Canada include the regional dimension in interpretation programs in order to place ecological integrity messages into regional, national, and global contexts. Make each park the regional focal point for public education programs in protected areas networks and ecosystem management.

This would entail:

Appendix G: 20

- increasing interpretation efforts to educate community and regional stakeholders on Parks Canada's ecological integrity mandate and on the specific ecological integrity objectives of each park;
- targeting these efforts in support of regional integration;
- changing the thinking that it is only Parks Canada's job to protect ecological integrity to a view that it is everyone's job;
- discussing broader environmental themes (such as global climate change) that are threats to ecological integrity and link these themes to national parks;
- reinforcing interpretation in the field by reinstating interpretation staff.

10-6. We recommend that Parks Canada increase and support the role of partners, particularly volunteer associations, in interpretation and outreach as an enhancement to, but not replacement of, the work of core professional full-time staff.

10-7. We recommend that Parks Canada immediately cease the product marketing of national parks in general and the product marketing which attempts to increase overall use of parks or divert demand to shoulder seasons or so-called "under-used" parks in particular. Concentrate instead on social marketing, policy marketing, and de-marketing aimed at appropriate target audiences with messages focusing on ecological integrity.

10-8. We recommend that Parks Canada work with regional and provincial bodies involved in tourism product marketing to educate them about the stresses on ecological integrity caused by current or increased levels of use and to encourage them to incorporate appropriate ecological integrity messages in their marketing programs.

CHAPTER 11: Enjoyment and Appropriate Use

11-1. We recommend that Parks Canada develop a formal assessment program for assessing activities in national parks with ecological integrity as the determining factor.

This assessment should:

- assess each activity nationally for allowability, with the assessment to be approved by the Director General of Ecological Integrity;
- assess each allowable activity at each national park for appropriateness, with the assessment to be approved by the Field Unit Superintendent with guidance from the Director General of Ecological Integrity;
- not allow or consider any new activities as allowable or appropriate without undergoing an assessment at the national level;
- using the Banff-Bow Valley Round Table process as an example, develop a set of conditions and standards to determine whether a particular activity and a particular level of use are appropriate in specific situations in terms of ecological integrity;
- use the precautionary principle as the primary guide in determining the appropriateness of types of activities and levels of use in national parks;
- use the following criteria as measures of the appropriateness of each allowable activity:
 - appropriate in terms of "basic and essential" services;
 - appropriate in terms of local environmental, social, and economic conditions;
 - appropriate in terms of numbers of visitors and timing;
 - appropriate in terms of demand for long-term use.

The framework proposed by Nilsen (1994) is a useful starting point for developing these policies and programs.

11-2. We recommend that Parks Canada phase out inappropriate recreational uses of national parks, over time and as opportunities arise, including those that are deemed “non-conforming uses.” (See also recommendations in Chapter 12.)

Note: this recommendation is related to recreational activities and does not include traditional activities that are part of a park establishment agreement.

11-3. We recommend that Parks Canada adopt demand management as an explicit policy, provide increased support for social and natural science research related to demand management, and address demand management in each park’s Park Management Plan and interpretation programs, so that visitors and other audiences can understand why they should support demand management.

11-4. We recommend that Parks Canada develop a national directive to define “basic and essential services.” Suggested wording appears in Appendix C.

CHAPTER 12: Shrinking the Ecological Footprint

Approaches to facility and community developments in national parks need to be updated to reflect a broader ecological and social view of sustainable development and practice.

12-1. We recommend that Parks Canada establish a highly qualified core design/planning group within Parks Canada’s National Office or in regional Service Centres, to be responsible for developing ecologically sensitive design criteria to ensure that ecologically sustainable design and management in all development projects in national parks is realized on the ground.

12-2. We recommend that Parks Canada procure all professional services on an open and competitive basis, emphasizing environmental performance criteria as much as other criteria such as design quality, cost, and timeliness of delivery.

12-3. We recommend that Parks Canada assess any capital redevelopment of facilities, accommodations and infrastructure belonging to both Parks Canada and to private or commercial operators.

This should be based on the following principles:

- maintenance of ecological integrity must be the first priority in all redevelopment decisions;
- apply the principle of “no net negative environmental impact” to all redevelopment decisions;
- conduct a needs analysis on all facilities, accommodations and infrastructure to determine whether they are required in the park and still acceptable, given current ecological understanding;
- all facilities, accommodations and infrastructure should be models of environmental management, including water and energy conservation, use of biocides, transportation and waste management;
- consider cumulative effects of facilities, accommodations and infrastructure at local and regional scales;
- most parks should not experience any increase in the present facility footprint;
- ensure that any redevelopment is consistent with the Park Management Plan and, if applicable, the community plan;
- facilities, accommodations and infrastructure developments should be responsible for providing staff accommodation so as to avoid undue burdens on park communities. This principle especially applies to accommodations for seasonal staff.

12-4. Over a long-term, programmed time frame, we recommend that Parks Canada redesign, replace, rebuild or remove existing facilities and infrastructure in national parks to reduce their ecological footprints.

Such improvements include:

- removing barriers to wildlife habitat and movement corridors, compacting and intensifying park communities, and using space with greater economy;

- applying ecologically-sensitive site planning for roads, parking areas and pedestrian traffic, pedestrian spaces and park arrival areas, consistent with best management practices and ecological design principles;
- modifying maintenance practices for manicured areas such as lawns, picnic sites, campgrounds and park arrival areas to a natural regime with native plants. Communicate the reasons for a "wild" or "unmanaged" appearance to park staff and to the public;
- eliminating alien, non-native plant species in park communities and open spaces;
- upgrading assets and facilities in the context of ecological integrity;
- making resources and skilled staff available in each park to conduct an environmental assessment prior to upgrading or decommissioning any asset or facility.

12-5. We recommend that Parks Canada use environmental management systems as integral to conducting daily operations in keeping with the preservation of ecological integrity.

The widespread adoption of the environmental management system could be facilitated by:

- communicating the importance of environmental management to all staff and contractors, and communicating the results of environmental management to the public through interpretation and outreach programs;
- including an environmental management system section, listing objectives, targets and progress indicators, in the State of the Park(s) reporting documents. Set environmental performance objectives in Park Management Plans and report on attainment in State of the Park Reports.

12-6. We recommend that Parks Canada, over time, incorporate sustainable infrastructure, energy systems, materials and practices in park management and activities. There are many ways to achieve this recommendation, such as:

- using benign technologies for energy systems (photo-voltaic solar power, wind turbines) or purchasing "green power" (electricity generated using renewable sources such as solar and wind) where this option is available;
- reducing vehicle emissions through a number of means from ensuring regular maintenance to using natural gas-powered or other low-emission vehicles;
- making tertiary treatment of sewage effluent in park communities and related park developments a priority and incorporate tertiary treatment systems as existing sewage treatment facilities require replacement;
- using water and energy conservation measures in all park buildings and communities; collaborate with residents and tourism facility operators to develop such conservation measures and systems;
- changing from environmentally harmful cleaning materials and procedures to benign products and procedures;
- incorporating composting systems and recycling programs in all park communities, park arrival areas, and recreation facilities where supporting recycling industries are available. Where these are not available, provide leadership to develop appropriate recycling industries working in collaboration with local and regional jurisdictions or waste management operators;
- sharing advice and expertise among parks and park staff, incorporating ideas from all staff levels to improve design, maintenance and procedures.

12-7. We recommend that Parks Canada closely track the implementation of the new policy review component of environmental assessment at all national parks, in order to evaluate its effectiveness in enhancing decision-making related to the scale and appropriateness of proposed projects. Policy review should produce a record of decision that describes project objectives, evaluates alternatives (particularly non-development alternatives), demonstrates concordance with all relevant national park policies and identifies measures for evaluating the success of the project's implementation and operation. Information from the evaluation should be used adaptively to improve future projects and future environmental assessments.

12-8. We recommend that Parks Canada adopt the principle of integrating environmental considerations into all projects. Include environmental assessment practitioners in all phases of a project, from concept to final construction, in partnership with the project manager. As a means of ensuring that ecological integrity becomes everyone's job, project managers, not the environmental assessment practitioner, must be responsible for meeting ecological integrity objectives related to their project.

12-9. We recommend that Parks Canada enhance its expertise in understanding and managing cumulative effects (Chapter 4).

12-10. We recommend that Parks Canada provide individual national parks with the authority to set an annual date beyond which project proposals will not be accepted. This will enable environmental assessment staff to organize their workload and will provide a reference point as an aid in evaluating cumulative effects. Park Management Plans should provide an assessment of cumulative effects and identify quantitative targets for limiting cumulative effects over the period of the Park Management Plan (Chapter 3).

12-11. We recommend that Parks Canada provide training in environmental assessment for all prospective project managers, and provide professional development and networking opportunities for specialist and practitioner positions.

12-12. We recommend Parks Canada establish a policy formally adopting the precautionary principle to ensure that risk to national park ecosystems is reduced. Park Management Plans should contain a statement describing how the park will apply the precautionary principle in managing development proposals.

CHAPTER 13: The Need for Committed Investment

13-1. We recommend that Parks Canada take the following first steps to implement improved management and accountability for ecological integrity in national parks before the allocation of additional resources to maintain and restore ecological integrity.

The first steps proposed by the Panel have been chosen to be seminal in setting a new direction for Parks Canada at both symbolic and operational levels. These first steps are measures that have been recommended previously in this report:

- reforms to bring science advice and information to the Chief Executive Officer and into the Executive Board through the appointment of a national Director General of Ecological Integrity (Chapters 2 and 4);
- initiation of a participatory process to develop an Agency Charter, which would lay out the core values of the organization as they relate to its primary objective of ecological integrity (Chapter 2);
- development and early implementation of a detailed and ongoing training and orientation program focused on ecological integrity (Chapter 2);
- revisions to planning guidelines to make ecological integrity the core and overarching theme of future Park Management Plans (Chapter 3);
- gazetting the wilderness zones in at least two national parks in order to give them legal designation, and announcing the intention to gazette wilderness zones in all parks within five years (Chapter 3);
- establishing written guidelines for the re-orientation of the external relations (marketing) department from a focus on mass tourism product marketing to a focus on social marketing, policy marketing, and de-marketing with messages focusing on ecological integrity (Chapter 10);
- strengthening systems to enable public transparency on spending of all additional resources in business plans and public estimates, to make readily identifiable the budgets for: ecosystem research, monitoring and management; the Partnerships Fund and expanded partnerships with Aboriginal peoples; and national parks interpretation;
- development of a strategic plan for moving beyond these first steps to address the longer-term issues essential for the re-orientation of the Parks Canada Agency's national parks components toward the ecological integrity objective, including:
 - a detailed budget plan for expenditure of all additional resources given for ecological integrity purposes;

- specific accountability goals for the ecological integrity mandate, including regional integration at national, Field Unit and individual park levels;
- initiation of communications with Aboriginal peoples on how to undertake a healing process;
- a plan to refocus the interpretation and outreach programs on ecological integrity as the primary message, and to widen the audiences for these programs.

13-2. We recommend that the Minister of Canadian Heritage seek additional resources to implement the recommendations of the Panel as follows (see Figure 13-4 for specific dollar amounts):

- to upgrade the internal knowledge capacity of Parks Canada, and enable co-operation with external science programs (Chapter 4) as follows:
 - increase internal capacity in the natural and social sciences and in planning.
 - fund education leaves to upgrade the knowledge of existing staff.
 - funding support for external researchers through 10 co-operative study units and student internship programs in each park.
 - a Conservation Data Centre Partnership.
 - an emerging issues research envelope.
- to supplement and expand active management programs (Chapter 5) as follows:
 - a dedicated site restoration envelope to ensure there are funds available and that restoration is not directly competing with other immediate priority issues.
 - to supplement the existing fire restoration program so that fire can be restored to 50 per cent of its long term average.
- to supplement and stabilize ongoing funding for ecological monitoring activities (Chapter 6) as follows:
 - an ecological integrity monitoring envelope.
 - atmospheric monitoring in co-operation with the Atmospheric Environment Branch of Environment Canada.
- to improve relations between Aboriginal peoples and Parks Canada (Chapter 7):
 - for liaison officers and activities in aboriginal communities and in Parks Canada.
- to contribute to partnerships that will support the ability to maintain the ecological of national parks:
 - for a Partnership Fund to be applied to a broad range of co-operative agreements with respect to maintaining the ecological integrity of national parks and other national conservation areas (Chapter 9).
- to approximately double Parks Canada's budget for presentation of heritage resources (interpretation and outreach) by the national parks in order to expand national park interpretation programs to strategic new audiences, new media, and educational institutions, and with a greater focus on ecological integrity (Chapter 10):
 - work in collaboration with tourism operators and other groups to make ecological integrity messages available to people planning trips to national parks.
 - develop interpretation programs aimed at specific strategic audiences such as park community residents, national park staff, politicians and decision-makers in various levels of government, regional communities, youth and educators, and the private sector.
 - develop outreach programs to bring parks to people, especially in urban areas.
 - develop means to involve Aboriginal people in interpretation and outreach programs.

13-3. We recommend that the Minister of Canadian Heritage support proposals currently being made to the Minister of Finance by environmental non-governmental organizations to change the Income Tax Act to exempt ecological gifts from capital gains tax and allow for the part sale/part donation of land (Chapter 9).

13-4. We recommend that funding for new park establishment should include:

- an associated increase in base appropriations for subsequent park operations;
- the costs of developing an adequate ecological inventory. As a general rule, the cost of a basic inventory are estimated to be \$250,000 per park on average. This is over and above any other inventories such as the Mineral and Energy Resources Assessment process in the northern territories. There are currently 14 unrepresented regions and five northern parks with inadequate basic inventories. The total cost to complete a basic inventory of a completed national park system would be approximately \$5 million.

13-5. We recommend that Parks Canada divide project funds using an "envelope" system of fiscal management with one of these envelopes being for activities related to ecosystem research, monitoring, and management at both national and regional levels, and one envelope for projects under other program areas.

13-6. We recommend that Parks Canada initiate, within two years, an investigation of the infrastructure of each national park, to determine the capital funding required with respect to:

- current conditions of infrastructure facilities in relation to their impacts on ecological integrity and the need for replacement and/or upgrading;
- determination of appropriate design for environmentally sustainable technologies to meet ecological integrity objectives;
- a phased implementation program and identification of priority sites.

13-7. In keeping with the public trust to protect, conserve and interpret Canada's natural heritage, and to contribute towards the protection of global biodiversity as established in the Parks Canada Agency Act, we recommend that Parks Canada undertake pilot projects to adopt a revised definition of assets that would include the following elements:

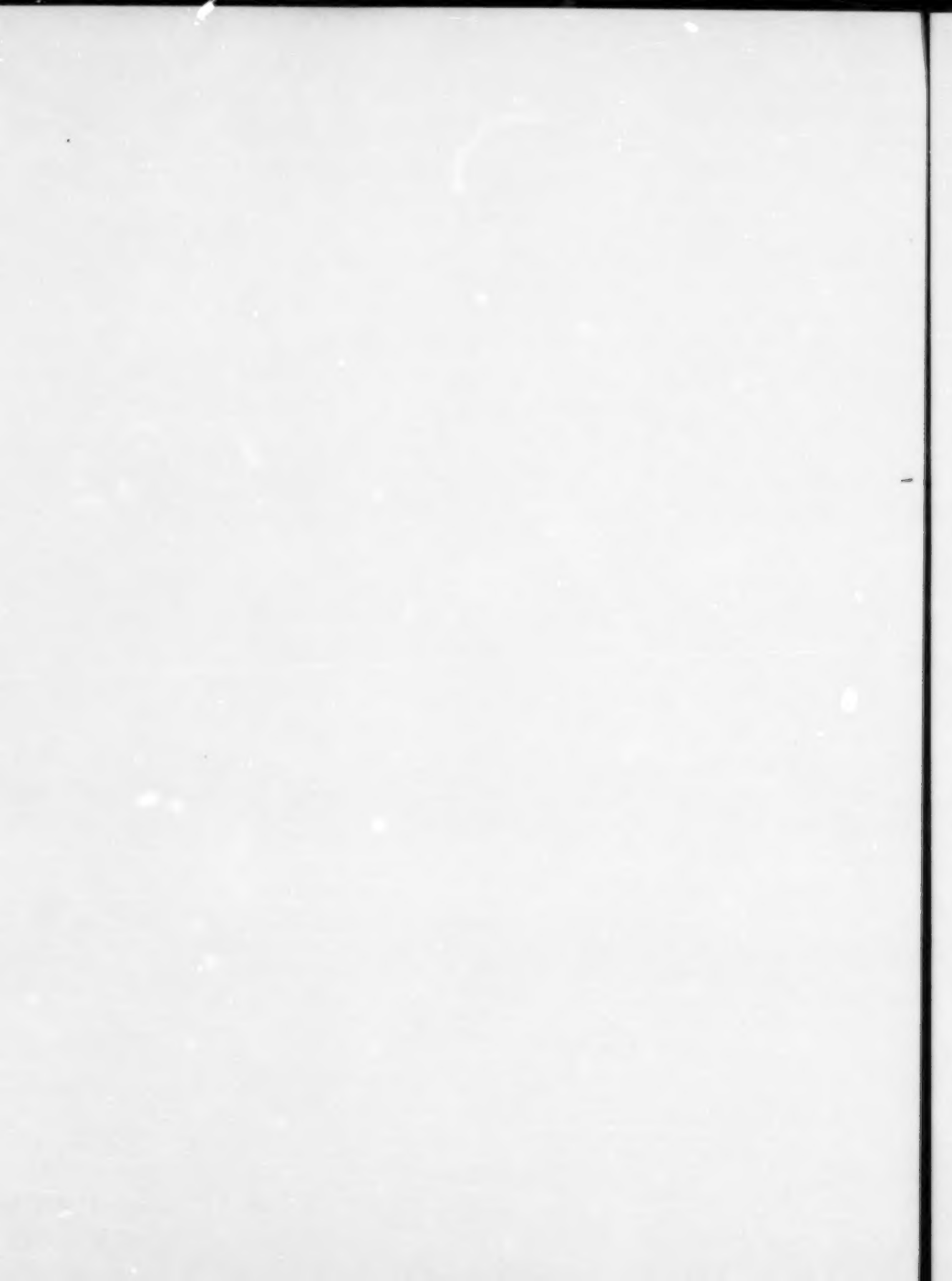
- the condition of the natural assets (natural resources) as indicated from park-level monitoring reports (State of Park Reports) and the costs associated with restoration and maintenance of these assets;
- knowledge assets such as data (inventory, monitoring, research), metadata, libraries, photo collections, specimen collections (including the value added from having a multi-year data base).

13-8. We recommend that Parks Canada require Field Units to include a specific examination of the implications of revenue forecasting and targets on maintenance and restoration of ecological integrity in their Implementation (Business) Plans.

13-9. We recommend that Parks Canada enable management decisions in support of ecological integrity to be separated from revenue implications and to accomplish this, through clarifying and publicizing that the need to protect ecological integrity is included in the revenue policy interpretation of "extraordinary circumstances" under which relief from revenue targets can be obtained.

13-10. We recommend that Parks Canada establish a consistent set of rules to be used in full cost accounting for all projects or activities with full cost recovery objectives.

A Thanksgiving



Throughout the Panel's journey this Thanksgiving travelled with them. Used as a closing for meetings, it helped place the Panel's mission in the greater context of the Mother Earth. Regardless of the personal backgrounds of those present, the "closing of the council fire" was always followed by reflection.

This Thanksgiving is presented to you in three languages — the two official languages of the Government of Canada, and the language of the Mohawk Nation. This is done to reflect the responsibility of all our peoples towards respecting the creation around us.

Greetings to the Natural World

The Words Before All Else

Native Self-Sufficiency Centre

Six Nations Indian Museum

Tracking Project

Tree of Peace Society

These words of thanksgiving come to us from the Native people known as the Haudenosaunee (also Iroquois or Six Nations —Mohawk, Oneida, Cayuga, Onondaga, Seneca and Tuscarora) of upstate New York and Canada. The Thanksgiving Address has ancient roots, dating back over 1,000 years to the formation of the Great Law of Peace by a man called the Peacemaker, and perhaps before that. Today these words are still spoken at the opening and closing of all ceremonial and governmental gatherings held by the Six Nations:

A speaker is chosen to give the Thanksgiving Greetings on behalf of the people. They choose their own words, for we are all unique and have our own style, but the general form is traditional. It follows an order in which we can all relate to all of the Creation. The Address is based on the belief that the world cannot be taken for granted, that a spiritual communication of thankfulness and acknowledgement of all living things must be given to align the minds and hearts of the people

with Nature. This forms a guiding principle of culture.

We believe that all people at one time in their history had similar words to acknowledge the works of the Creator. With this in mind, we offer these words in a written form as a way to re-acquaint ourselves with this shared vision. Our version of the Thanksgiving Address has been modified for a young, general audience—it has been shortened and many specific references to the cultures of the Six Nations have been generalized. We hope this will enhance the accessibility of the words for readers around the world.

It was Jake Swamp's original vision that this Address would go out to the children of the world, "so that later in life, when they go out and meet one another, they will find that they are all coming from the same place."

You are invited—encouraged—to share in these words, that our concentrated attention might help us rediscover our balance, respect, and oneness with Nature.

Now our minds are one.

Greetings to the Natural World

The People

Today we have gathered and we see that the cycles of life continue. We have been given the duty to live in balance and harmony with each other and all living things. So now, we bring our minds together as one as we give greetings and thanks to each other as People.

Now our minds are one.

The Earth Mother

We are all thankful to our Mother, the Earth, for she gives us all that we need for life. She supports our feet as we walk about upon her. It gives us joy that she continues to care for us as she has from the beginnings of time. To our Mother, we send greetings and thanks.

Now our minds are one.

Salutations au monde de la nature

Le Peuple

Aujourd'hui nous nous sommes rassemblés et nous voyons que les cycles de vie continuent. Le rôle qui nous est confié est de vivre en équilibre et en harmonie les uns avec les autres et avec tous les organismes vivants. Aussi maintenant, nous unissons nos esprits pour n'en faire qu'un alors que nous nous adressons les uns les autres des salutations et remerciements comme Peuple.

Maintenant nos esprits ne font qu'un.

Notre mère, la Terre

Nous sommes tous reconnaissants à notre mère la Terre, parce qu'elle nous donne tout ce que nous avons besoin pour vivre. Elle supporte nos pieds alors que nous allons et venons à sa surface. Cela nous remplit de joie de savoir qu'elle continue de prendre soin de nous comme elle l'a fait depuis le commencement du monde. À notre Mère, nous adressons nos salutations et remerciements.

Maintenant nos esprits ne font qu'un.

Ohén:ton Karihwatêhkwen

Onkwehshón:ʔa

Onwa wenhniserâ:te ionkwakiaʔtarô:ron ne iorihwâ:ke ne aitewakaʔenichnion tsiniiohtonhâ:kie tsinaʔtitewâtere ne onkwehshón:ʔa tânonʔ tsinî:iot tsi rokwatâkwen ne ohontsiâ:ke. Ne ne â:ienreʔk akwê:kon skên:nen tsitewanonhtôn:nion ne tsiniionkwê:take kenhnôn:we iahitewaiaʔtaiê:ri oni tsi ionkwataʔkarî:te iah thahô:ten tekionkwakiaʔtônkion ne kanonhwaʔktênhtsheraʔ. Ne kati enhôn:we iorihwâ:ke tsi entewâtkaʔwe ne kanonhwaratônhtshera.

Êhtho niiohtônhaʔk ne onkwaʔnikôn:ra.

Iethiʔnistênha Ohôntsia

Onen nôn:wa ehôn:we nentsitewateʔnikonhraî:raʔte Iethiʔnistênha Ohôntsia tsi neʔe taiakohtkaʔwenhâ:kie tsinahoʔtenʔshôn ionkionhêhkwen. Iotshennôn:niaʔt tsi shê:kon teionkhihsniêkie tsinî:iot tsi shakohrienaiên:ni ne shahakwatâ:ko ne tsiionhontsiâ:te. Ne ionkhihawihshon ne onkwehshón:ʔa tânonʔ karioʔtaʔshôn:ʔa tsinikarî:wes ohontsiâ:ke teionkwatawên:rie. Ne kati ehôn:we iorihwâ:ke tsi entewâtkaʔwe ne kanonhwaratônhtshera.

Êhtho niiohtônhaʔk ne onkwaʔnikôn:ra.

The Waters

We give thanks to all the Waters of the world for quenching our thirst and providing us with strength. Water is life. We know its power in many forms — waterfalls and rain, mists and streams, rivers and oceans. With one mind, we send greetings and thanks to the spirit of Water.

Now our minds are one.

The Fish

We turn our minds to all the Fish life in the water. They were instructed to cleanse and purify the water. They also give themselves to us as food. We are grateful that we can still find pure water. So, we turn now to the Fish and send our greetings and thanks.

Now our minds are one.

Les Eaux

Nous rendons grâce à toutes les Eaux du monde parce qu'elles nous désaltèrent et nous donnent la force. L'Eau est la vie. Sa puissance se manifeste à nos yeux sous de nombreuses formes — cascades et pluie, brouillards et cours d'eau, rivières et océans. Unis en un seul esprit, nous adressons nos salutations et remerciements à l'esprit de l'Eau.

Maintenant nos esprits ne font qu'un.

Les Poissons

Nos esprits se tournent vers la vie de tous les Poissons qui sont dans l'eau. Ils ont été chargés de nettoyer et de purifier l'eau. Ils s'offrent également à nous comme nourriture. Nous sommes reconnaissants de pouvoir trouver encore de l'eau pure. Aussi, nous nous tournons vers les Poissons et leur adressons nos salutations et remerciements.

Maintenant nos esprits ne font qu'un.

Ohneka?shôn:?a

Onen ehñôn:we ientsitewakiê:ra?te ne ohneka?shôn:?a tsi rawê:ren tsi enkahnekônionke ne tsiionhontsiâ:te. Ne ehñôn:we nitewêhtha ne aionkwaha?tanâ:wen nô:nen enionkwania?tâthen. Nia?teka?satstenhserâ:ke tewaietê:ri—tsi ieiohnekên:shon, tsi iokennô:res, tsi iaonhawî:nes tânon? tsi kaniatarahrôn:nion. Khênska tsi entewahwe?nôn:ni ne onkwa?nikôn:ra ne iorihwâ:ke tsi entewâtka?we ne kanonhwaratônhtshera.

Êhtho niihtônha?k ne onkwa?nikôn:ra.

Kentsionshôn:?a

Tânon? kati ehñôn:we nikontî:teron ne khia?tekêntsiake tânon? otsi?nonwa?shôn:?a. Ne?e teshakô:wi ne takontohtâhrho tsi kahnekarôn:n'on. Ne oni taionatka?wenhâkie ne onkwatennâ:tshera ne ionkwaia?tahnirâ:tha. Ne ne iotshennôn:nia?t tsi shê:kon iorihwatô:ken ionkwatshenrionhâkie ne ne kahneki:io. Ehnonkwâ:ti entewakiê:ra?te ne entewâtka?we ne kanonhwaratônhtshera.

Êhtho niihtônha?k ne onkwa?nikôn:ra.

The Plants

Now we turn toward the vast fields of Plant life. As far as the eye can see, the Plants grow, working many wonders. They sustain many life forms. With our minds gathered together, we give thanks and look forward to seeing Plant life for many generations to come.

Now our minds are one.

Les Plantes

Maintenant nous nous tournons vers les vastes champs remplis de végétaux. Aussi loin que le regard peut porter, les Plantes se développent, créant une multitude de merveilles. Elles entretiennent de nombreuses formes de vie. Nos esprits étant réunis, nous adressons nos remerciements et nous espérons voir les Plantes se perpétuer pendant de nombreuses générations à venir.

Maintenant nos esprits ne font qu'un.

Tsi Shonkwaienthō:wi

Ne onen ehndh:we
nentsitewakiē:ra?te ne tsini:iot tsi
tekahentaiehn:ton.
Ia?teiotkahrōktha ohontsiakwē:kor
taiohnio?onhākie ne
shonkwaienthō:wi ne
niatekonti?satstenhserā:ke ne
ohonte?shōn:ʔa. Aiā:wens kiōtkon
aitewatkahtōhseke ne tsini:iot tsi
rowinentā:ʔon. Enska tsi
entewahwe?ndh:ni ne
onkwa?nikōn:ra tānon? tsi
ia?teiotihtehrdh:ton
entitewahawihtānion ne
kanonhwaratōhtshera.

Ėhtho niiohtōnha?k ne
onkwa?nikōn:ra.

The Food Plants

With one mind, we turn to honour and thank all the Food Plants we harvest from the garden. Since the beginning of time, the grains, vegetables, beans and berries have helped the people survive. Many other living things draw strength from them too. We gather all the Plant foods together as one and send them a greeting and thanks.

Now our minds are one.

Les Plantes alimentaires

Unis dans un même esprit, nous désirons maintenant honorer et remercier toutes les Plantes alimentaires que nous récoltons dans le jardin. Depuis le commencement du monde, les céréales, les légumes, les haricots et les baies ont aidé les gens à survivre. Un grand nombre d'autres organismes vivants en tirent également leur force. Nous réunissons toutes les Plantes servant de nourriture en un tout et nous leur adressons nos salutations et remerciements.

Maintenant nos esprits ne font qu'un.

Kaien?thōhshera

Enska tsi entewahwe?ndh:ni ne
onkwa?nikōn:ra tānon? ehndh:we
nentsitewakiē:ra?te ne ne
onkwatennā:tshera tsini:iot tsi
shonkwaienthō:wi. Ne
teionkwahsniēkie ne
kaienthōhsara tsinikari:wes
ohontsiā:ke teionkwatawān:rie.
Nia?teiotikiōhkwake ne kā:nēn,
osahē:ta tānon? kahi?shōn:ʔa
tewaienthōkwas ne
ionkwaistahnirā:tha. Ne oni
iononhēhkwen ne kwah
tsinaho?tēh:shon rōhshon ne
ohontsiā:ke. Ne tsinentewā:iere ne
kati enkiethihwe?ndh:ni ne
kaienthohtshera?shōn:ʔa tsi
wa?tiethinonhwarā:ton.

Ėhtho niiohtōnha?k ne
onkwa?nikōn:ra.

The Medicine Herbs

Now we turn to all the Medicine Herbs of the World. From the beginning, they were instructed to take away sickness. They are always waiting and ready to heal us. We are happy there are still among us those special few who remember how to use these plants for healing. With one mind, we send greetings and thanks to the Medicines and to the keepers of the Medicines.

Now our minds are one.

Les Herbes médicinales

Nous nous tournons maintenant vers toutes les Herbes médicinales du monde. Depuis le commencement, elles ont eu pour mission d'éloigner la maladie. Elles sont toujours là prêtes à nous guérir. Nous sommes heureux qu'il y en ait encore quelques-uns parmi nous qui se rappellent comment se servir de ces plantes pour guérir. Unis dans un seul esprit, nous adressons nos salutations et remerciements aux plantes médicinales et à ceux qui en sont les gardiens.

Maintenant nos esprits ne font qu'un.

Ononhkwa?shón:ʔa

Ne onen ehññ:we
nentsitewakîe:raʔte ne
ononhkwa?shón:ʔa iorihwá:ke. Ne
tsinihoiê:ren ohontsiakwê:kon
tethohráhthon ne
ononhkwa?shón:ʔa. Ne
ionaterihonte aʔê:ren
kontihawihtha ne
kanonhwa?ktêhtshera. Kiôtkon
iotiharêkies tânon?
ionatatewinentâ:on aiakôtsienʔte?
lotshennónniaʔt tsi shê:kon
teiontonkweʔtaiestâhshion ne
ronnê:iahere tsiniotiiianerenh-
sheroʔtân:shon ne
ononhkwa?shón:ʔa. Onen kati
nenʔne tentsiethinonhwarâ:ton ne
ononhkwa?shón:ʔa tânon?
tsiniionkwê:take neʔe tehotihkwen
tsi rontenonhkwa:taheranonhne.

Êhtho niihtónhaʔk ne
onkwaʔnikón:ra.

The Animals

We gather our minds together to send greetings and thanks to all the Animal life in the world. They have many things to teach us as people. We see them near our homes and in the deep forests. We are glad they are still here and we hope that it will always be so.

Now our minds are one.

Les Animaux

Nous unissons nos esprits pour adresser des salutations et remerciements à tous les Animaux des quatre coins du monde. Ils ont beaucoup de choses à nous apprendre comme peuple. Nous les apercevons près de nos demeures et dans les forêts profondes. Nous sommes heureux qu'ils soient encore ici et nous espérons qu'il en sera toujours ainsi.

Maintenant nos esprits ne font qu'un.

Kontîrio

Enska tsi entewahweʔnñ:ni ne
onkwaʔnikón:ra tânon?
teniethinonhwarâ:ton ne kontî:rio
ne ne ohontsiakwê:kon
shakotkâ:wen. Ôkiaʔke iethî:kens
teionatawenriehâkies aktónkie
tsiionkwataskwardññion oni
tsikaskawaiñ:ton. Iotshennónniaʔt
ehññ:we iorihwá:ke tsi shê:kon
iethî:kens ne kontî:rio oni aiâ:wens
kiôtkon ehnaiohtónhake.

Êhtho niihtónhaʔk ne
onkwaʔnikón:ra.

The Trees

We now turn our thoughts to the trees. The Earth has many families of Trees who have their own instructions and uses. Some provide us with shelter and shade, others with fruit, beauty and other useful things. Many peoples of the world use a Tree as a symbol of peace and strength. With one mind, we greet and thank the Tree life.

Now our minds are one.

Les Arbres

Nous portons maintenant nos pensées sur les arbres. Il y a sur la Terre de nombreuses familles d'Arbres qui ont leurs propres fonctions et utilisations. Certains nous fournissent un abri et de l'ombrage, d'autres nous apportent des fruits, leur beauté et d'autres choses utiles. Beaucoup de peuples dans le monde utilisent un Arbre comme symbole de paix et de force. Unis en un seul esprit, nous saluons et remercions les Arbres.

Maintenant nos esprits ne font qu'un.

Okwire?shón:ʔa

Onen nón:wa ehñón:we
nentsitewate?nikonraiê:ra?te ne
iorihwâ:ke ne okwire?shón:ʔa.
Ohontsiakwê:kón
kahwatsirakê:ron iotihniô:ton ne
ne khia?tekakwi:rake. Ne ne
tsinaho?tên:shon ionaterihón:te ne
khia?tekaiên:take ôkia?ke?
thonón:we nitewaterahkwawe-
hosthâkhwa tânón? ôkia?ke?
ionien?tón:nion oni tsi ne
iontenonhshatariha?tâhkhwa
tânón? oni ne ionniâ:ton ne tsi
ionkwataskwahron:nion.
Iotka?tâtkie ronatkwirarâkwen ne
onkwehshón:ʔa ne ne
ohontsiakwê:kón kahwatsirakê:ron
tsi ne?e shonehia?râhkhwen ne
skenen?kô:wa tânón?
ka?satsténhsera. Enska tsi
entewahwe?nón:ni ne
onkwa?nikón:ra tsi
wa?kiethinonhwarâ:ton ne
okwire?shón:ʔa.

Êhtho niihtónha?k ne
onkwa?nikón:ra.

The Birds

We put our minds together as one and thanks all the Birds who move and fly about over our heads. The Creator gave them beautiful songs. Each day they remind us to enjoy and appreciate life. The Eagle was chosen to be their leaders. To all the Birds — from the smallest to the largest — we send our joyful greetings and thanks.

Now our minds are one.

Les Oiseaux

Nous unissons nos esprits pour n'en faire qu'un et remercions tous les Oiseaux qui se déplacent et volent au-dessus de nos têtes. Le Créateur les a pourvus de chants magnifiques. Chaque jour, ils nous rappellent de jouir de la vie et de l'apprécier. L'Aigle a été choisi pour être leur chef. À tous les oiseaux — du plus petit au plus gros — nous adressons nos joyeuses salutations et nos remerciements.

Maintenant nos esprits ne font qu'un.

Otsi?ten?okôh:ʔa

Enska tsi entewahwe?ndô:ni ne onkwa?nikôh:ra tânô? teniethinonhwarâ:ton ne otsi?ten?okôh:ʔa tsiionkwatenontsistatênion kontikienôhkie?s. Ne kati ne?e shakorennâ:wi ne akonterennô:ten ne ne skên:nen akaiên:take tsiionhontsiâ:te. Ôkia?ke oni ne entewatekhwaiêstahkwe. Oni ne rorâkwen ne tsinikâ:ien entkonwatikowanenâke ne ne â:kweks nihohshennô:ten. Iotshennôhnia?t tsi shê:kon iethi:kens akwê:kon ne otsi?ten?okôh:ʔa ne nihonnâ:sa oni ne raktikowâ:nens. Onen kati tentsiethinonhwarâ:ton ne otsi?ten?okôh:ʔa.

Êhtho niihtôhha?k ne onkwa?nikôh:ra.

The Four Winds

We are all thankful to the powers we know as the Four Winds. We hear their voices in the moving air as they refresh us and purify the air we breathe. They help to bring the change of seasons. From the four directions they come, bringing us messages and giving us strength. With one mind, we send our greetings and thanks to the Four Winds.

Now our minds are one.

Les Quatre Vents

Nous sommes tous reconnaissants aux puissances que nous connaissons sous le nom des Quatre Vents. Nous entendons leurs voix dans l'air en mouvement alors qu'ils nous rafraîchissent et purifient l'air que nous respirons. Ils participent au changement des saisons. Ils viennent des quatre directions, nous apportant des messages et nous donnant la force. Unis dans un seul esprit, nous adressons nos salutations et remerciements aux Quatre Vents.

Maintenant nos esprits ne font qu'un.

Owera?shôn:ʔa

Onen nôh:wa ehndô:we nentsitewate?nikonraiê:ra?te ne tsinî:iot tsi rokwatâ:kwen rawê:ren enkaie:take ne ka?satstenhsera?shôn:ʔa ne ne kaiê:ri nikawerâ:ke. Ne iethiwennahrôhka ratiwerarâstha ne tsiionhontsiâ:te â:se shonnô:ni ne tsinî:iot tsi tewatôn:rie oni tsi ne tehotitenionhâkie ne tsi niionkwakenhô:tens. Kaiê:ri niiokwên:rare tsinô:we thatiienhthâkhwa tsi ionkhi?satstenhsherâ:wis. Ne tsi nentsitewâ:iere enska tsi entewahwe?ndô:ni ne onkwa?nikôh:ra tânô? teniethinonhwarâ:ton ne ne kaiê:ri nikawerâ:ke.

Êhtho niihtôhha?k ne onkwa?nikôh:ra.

The Thunderers

Now we turn to the west where our Grandfathers, the Thunder Beings, live. With lightning and thundering voices, they bring with them the water that renews life. We bring our minds together as one to send greetings and thanks to our Grandfathers, the Thunderers.

Now our minds are one.

Les Créatures du tonnerre

Nous nous tournons maintenant vers l'ouest où vivent nos grands-pères, les Créatures du Tonnerre. Avec les éclairs et leurs voix tonitrueuses, ils apportent avec eux l'eau qui renouvelle la vie. Nous unissons nos esprits pour n'en faire qu'un afin d'adresser nos salutations et remerciements à nos grands-pères, les Créatures du Tonnerre.

Maintenant nos esprits ne font qu'un.

The Sun

We now send greetings and thanks to our eldest Brother, the sun. Each day without fail he travels the sky from east to west, bringing the light of a new day. He is the source of all the fires of life. With one mind, we send greetings and thanks to our Brother, the Sun.

Now our minds are one.

Le Soleil

Nous adressons maintenant nos salutations et remerciements à notre Frère aîné, le Soleil. Chaque jour, sans arrêt, il traverse le ciel d'est en ouest, apportant la lumière d'une nouvelle journée. Il est la source de tous les feux qui entretiennent la vie. Unis dans un seul esprit, nous envoyons nos salutations et remerciements à notre Frère, le Soleil.

Maintenant nos esprits ne font qu'un.

Ratiwê:ras

Onen ehndh:we ientsitewakiê:ra?te ne tsi ia?tewa?tshénthos nñh:we thatiienhthâkhwa ne ionkhisho?thokñh:ʔa ratiwê:ras. Tewahni?nakara?wânions nô:nen â:re tontaiionharê:re tahatihnekenhâ:wi ne â:se enshonndh:ni ne tsi ionhontsiâ:te. Ne tsi nentewâ:iere enska tsi entewahwe?ndh:ni ne onkwa?nikñh:ra tânon? teniethinonhwarâ:ton ne ionkhisho?thokñh:ʔa ratiwê:ras.

Êhtho niihtñh:ʔk ne onkwa?nikñh:ra.

Kionhkehnêkha Karâhkwa

Onen ndh:wa ehndh:we nentsitewate?nikonraiê:ra?te ne tsikaronhiâ:te rorihwatô:ken êhtho tehaiahiâkhons ne tshionkwahtsi:ʔa kionhkehnêkha karâhkwa. Ne tehoswa?thê:ton tsiniaonkwenonhâkie tânon? ne ro?tariha?tonhâkie ne tsi ionhontsiâ:te ne ne skñh:nen tsi akontonha?tñh:ti ne tsinahô:ten shonkwaienthô:wi. Ne tsi nentsitewâ:iere enska tsi entewahwe?ndh:ni ne onkwa?nikñh:ra tânon? tentshitewanonhwarâ:ton ne tshionkwahtsi:ʔa kionhkehnêkha karâhkwa.

Êhtho niihtñh:ʔk ne onkwa?nikñh:ra.

Grandmother Moon

We put our minds together and give thanks to our oldest Grandmother, the Moon, who lights the night time sky. She is the leader of women all over the world, and she governs the movement of the ocean tides. By her changing face we measure time, and it is the Moon who watches over the arrival of children here on Earth. With one mind, we send greetings and thanks to our Grandmother, the Moon.

Now our minds are one.

Notre Grand-mère, la Lune

Nous unissons nos esprits et rendons grâce à notre Grand-mère aînée, la Lune, qui éclaire le ciel pendant la nuit. Elle est la leader des femmes dans le monde entier et elle règle le mouvement des marées. Grâce à son aspect changeant, nous mesurons le temps et c'est la Lune qui surveille l'arrivée des enfants ici sur Terre. Unis dans un seul esprit, nous adressons nos salutations et remerciements à notre Grand-mère, la Lune.

Maintenant nos esprits ne font qu'un.

Ahsonhthenhnêkha Karâhkwa

Ne tsi nentsitewâ:iere enska tsi entewahwe?ndn:ni ne onkwa?nikn:ra tânon? teniethinonhwarâ:ton ne ne ahsonhthenhnêhshon? êhndn:we kiekonhsarâkies ne ne ionkhihsôtha karâhkwa. Ohontsiakwê:kon ne tekontatenen?tshî:ne ne tsiona?thonwî:sen. Oni tsinî:iot tsi wat?nekoriâ:nerens ohontsiakwê:kon akadhha ne êhndn:we iakorihwaietâhkwen. Ahañha iakote?nientensthonhâkie ka?nikahâ:wi tsi tehotita?onhâkie ne ratiksha?okn:ʔa. Oni ne tewatenientensthâkhwa tsinî:iot tsi teiakotenionhâkie tsi nikakotkonhsaierâ:ton ne?e onkwatenhni?ta?shetâhtshera. Onen kati enska tsi entewahwe?ndn:ni ne onkwa?nikn:ra tânon? teniethinonhwarâ:ton ne ionkhihsôtha karâhkwa.

Êhtho niihtônha?k ne onkwa?nikn:ra.

The Stars

We give thanks to the Stars who are spread across the sky like jewellery. We see them in the night, helping the Moon to light the darkness and bringing dew to the gardens and growing things. When we travel at night, they guide us home. With our minds gathered together as one, we send greetings and thanks to all the Stars.

Now our minds are one.

Les Étoiles

Nous rendons grâce aux Étoiles qui sont éparpillées dans le ciel et ressemblent à des bijoux. Nous les voyons s'illuminer dans la nuit, aidant la Lune à éclairer l'obscurité et apportant la rosée aux jardins et aux choses qui croissent. Lorsque nous voyageons la nuit, elles nous guident vers notre demeure. Nos esprits étant réunis pour n'en faire qu'un, nous adressons nos salutations et remerciements à toutes les Étoiles.

Maintenant nos esprits ne font qu'un.

Otsistanohkwa?shôn:ʔa

Ê:neken nentsitewakiê:ra?te ne ne otsistanohkwa?shôn:ʔa tentsiethinonhwarâ:ton. Ahsonthenhnêhshon iethî:kens shakotienawâ:se ne ionkhihsôtha karâhkwa tehotihswathê:ton. Ona tsi ne?e ron?aweiâstha ne ne skân:nen tsi akontonha?tân:ti ne tsinahô:ten shonkwaienthô:wi tânon? tsi ionkwa?thehtakê:ron. Ne oni tewate?nientensthâkhwa tsi iah thaitewakia?tâhton tsi niahonkwennonhâkie. Enska tsi entewahwe?ndn:ni ne onkwa?nikn:ra tânon? teniethinonhwarâ:ton ne otsistanohkwa?shôn:ʔa.

Êhtho niihtônha?k ne onkwa?nikn:ra.

The Enlightened Teachers

We gather our minds to greet and thanks the enlightened Teachers who have come to help throughout the ages. When we forget how to live in harmony, they remind us of the way we were instructed to live as people. With one mind, we send greetings and thanks to these caring Teachers.

Now our minds are one.

Closing Words

We have now arrived at the place where we end our words. Of all the things we have named, it was not our intention to leave anything out. If something was forgotten, we leave it to each individual to send such greetings and thanks in their own ways.

And now our minds are one.

Les Sages

Nous unissons nos esprits pour saluer et remercier les Sages qui nous ont apporté leur aide à travers les âges. Lorsque nous oublions de quelle façon vivre en harmonie, ils nous rappellent comment on nous a enseigné de vivre comme peuple. Unis dans un seul esprit, nous adressons nos salutations et remerciements à ces maîtres bienveillants.

Maintenant nos esprits ne font qu'un.

Paroles de fermeture

Nous sommes maintenant arrivés à l'endroit où nous finissons notre message. Parmi toutes les choses auxquelles nous avons donné un nom, nous n'avions pas l'intention d'en omettre aucune. S'il y a eu un oubli, nous laissons à chacun le soin d'adresser des salutations et remerciements à leur manière.

Et maintenant nos esprits ne font qu'un.

Shonkwaia?tison Raonkweta?shôn:?a

Enska tsi entewahwe?nôh:ni ne onkwa?nikôh:ra tânon? teniethinonhwarâ:ton ne tsi nikâ:ien ne ronaterihonte ne ahonten?nikôh:raren ne tsi kahwatsirakê:ron ne tôhsa? thê:nen ne akierôntshera ahonataweîâ:ten. Ne tsionkhiiehiahrahkhwa tsini:iot tsi rawê:ren ne taiontawêh:rie ne onkwehshôn:?a. Entewahwe?nôh:ni ne onkwa?nikôh:ra tânon? teniethinonhwarâ:tor ne Shonkwaia?tison Raonkweta?shôn:?a.

Êhtho niiohtôhha?k ne onkwa?nikôh:ra.

Sakarihwahô:ton

Onen ehnoh:we iahêtwawe ne ieiôhe onsaitewarihwahô:ton. Ne tsi naho?tên:shon wetewana?tôhnion, iah ki teionkwanikonhrôh:ni toka nahô:tenk saionkwa?nikôh:hrhen. Tsisewaintâtshon ki ne onen wakwarihwaiéntâhkwen ne entisewatka?we kanonhwaratôhtshera.

Êhtho niiohtôhha?k ne onkwa?nikôh:ra.

The Creator

Now we turn our thoughts to the Creator, or Great Spirit, and send greetings and thanks for all the gifts of Creation. Everything we need to live a good life is here on this Mother Earth. For all the love that is still around us, we gather our minds together as one and send our choicest words of greetings and thanks to the Creator.

Now our minds are one.

Le Créateur

Maintenant nous tournons nos pensées vers le Créateur, ou le Grand Esprit. Nous lui adressons nos salutations et lui rendons grâce pour tous les cadeaux de la Création. Tout ce dont nous avons besoin pour mener une vie agréable se trouve ici sur notre Mère, la Terre. Pour tout l'amour qui nous entoure encore, nous unissons nos esprits pour n'en faire qu'un et nous adressons au Créateur nos plus beaux mots de salutations et de remerciements.

Maintenant nos esprits ne font qu'un.

Shonkwaia?tison

Onen ehnôn:we iatitewawennanihâ:rane ne tsi nôn:we thotatenaktarakwên:ni ne Shonkwaia?tison. Akwê:kon ehnôn:we nikiawê:non ne ka?shatsténhsera. Akwê:kon ne tahotka?wenhâkie ne tsi nahô:ten ne ne skên:nen tsi iaitewanonhtonnonhâ:ke tsinikari:wes ohontsiâ:ke teionkwatawên:rie. Iotshennônnia?t ne taiontkahthônnon ne orihwakwê:kon â:ienre?k shonkwanorônkhwa tsi shê:kon iotiio?tâkie ne tsini:iot tsi shakorihwaientâkwen tsi naho?tên:shon rôhshon ne tsi ionhontsiâ:te. Entitewateweiên:ton ehnôn:we entewatewennaiê:rate ne ne îsi na?karôn:iati ne kati wahi entewâtka?we kanonhwaratônhtshera.

Êhtho niohtônha?k ne onkwa?nikôn:ra.